

PUBLIC HEALTH ACT.

(11 & 12 Vict., Cap. 63.)

REPORT

TO THE

GENERAL BOARD OF HEALTH

ON A

PRELIMINARY INQUIRY

INTO THE SEWERAGE, DRAINAGE, AND SUPPLY OF
WATER, AND THE SANITARY CONDITION
OF THE INHABITANTS

OF THE PARISH OF

BERWICK-UPON-TWEED,

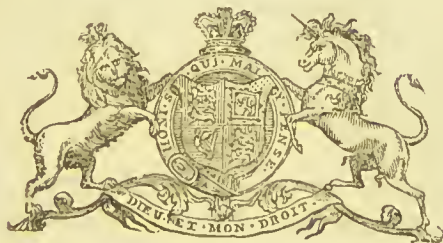
IN THE COUNTY OF THE BOROUGH AND TOWN OF THE SAME,

INCLUDING THE TOWNSHIPS OF

TWEEDMOUTH AND SPITTAL.

By ROBERT RAWLINSON, Esq., C.E.

SUPERINTENDING INSPECTOR.



LONDON:

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FOR HER MAJESTY'S STATIONERY OFFICE.

1850.

NOTIFICATION.

THE General Board of Health hereby give notice, in terms of section 9 of the Public Health Act, that on or before the 29th of April next, written statements may be forwarded to the Board with respect to any matter contained in or omitted from the accompanying Report on the Sewerage, Drainage, and Supply of Water, and the Sanitary Condition of the Inhabitants, of the Parish of BERWICK-UPON-TWEED, in the County of the Borough and Town of the same, including the Townships of TWEEDMOUTH and SPITTAL; or with respect to any amendment to be proposed therein.

By order of the Board,

HENRY AUSTIN, *Secretary.*

*Gwydyr House, Whitehall,
14th March, 1850.*

PUBLIC HEALTH ACT (11 & 12 Vict., cap. 63).

Report to the General Board of Health on a Preliminary Inquiry into the Sewerage, Drainage, and Supply of Water, and the Sanitary Condition of the Inhabitants, of the Parish of BERWICK-UPON-TWEED, in the County of the Borough and Town of the same, including the Townships of TWEEDMOUTH and SPITTAL. By ROBERT RAWLINSON, Esq., Civil Engineer, Superintending Inspector.

6th February, 1850. †

MY LORDS AND GENTLEMEN,

A PETITION having been forwarded to your Honourable Board, signed by 158 ratepayers (being more than one-tenth) resident in the district, stating—

“That the town of Berwick is extremely deficient with respect to provisions, regulations, and restrictions in regard to the health of the inhabitants, and in particular as to the drainage and sewerage thereof, and the other matters intended to be remedied under the provisions of the Act passed in the last Session of Parliament, intituled ‘An Act for Promoting the Public Health.’

“That your petitioners are aware that the remedies which can be applied to the existing evils are of such a nature as to require the authority of Parliament for their enforcement.

“Your petitioners therefore humbly pray that directions may be given that the said Act for promoting the public health may, with all convenient speed, be applied and put in force and operation within the said parish, or such part or parts thereof as to your Honourable Board shall seem meet.

“And your petitioners will ever pray, &c.

(Signed)

“H. G. C. CLARKE, Mayor.

“PATRICK CLAY, Sheriff.

“GEORGE JOHNSTON, M.D.

“And others”—

—in accordance with your instructions I visited the locality, and in open court, and during my examination of the district, I received the greatest amount of support from the mayor, who, as a medical gentleman, thoroughly understood the whole subject of the inquiry, and for years before had striven to awaken the attention of his fellow-townsmen to the necessity and great advantages of sanitary improvement. The town clerk also afforded me every information; Mr. Ramsay attended as representing in

himself 1-14th of the rateable property of Tweedmouth, and willingly furnished all the information required; and to the medical gentlemen generally my thanks are due for their most able, earnest, and disinterested evidence, advice, and general assistance throughout the inquiry.

On Wednesday, October 31st, 1849, at the town hall, Berwick-upon-Tweed, the inquiry was commenced. The following gentlemen were present:—H. G. C. Clarke, Esq., M.D., mayor, and chairman of the board of guardians; Captain Smith, R.N., vice-chairman of the board of guardians; Messrs. W. and E. Willoby, clerks to the board of guardians; Colonel Hogarth; G. K. Nicholson, Esq., magistrate; G. Gilchrist, Esq., magistrate; Robert Home, Esq., town clerk; R. B. Weatherhead, Esq., coroner; Geo. Marshall, Esq., solicitor; G. B. Dalton, Esq., solicitor; Major Elliot; Alex. Cahill, Esq., M.D., and Geo. Johnston, Esq., M.D., magistrates for the borough; S. F. Edgar, Esq., M.D.; Alex. Kirkwood, Esq., M.D., and parish surgeon; Mr. Fluker, surgeon; Mr. John R. Dunlop, town councillor; Mr. Thomas Hubback, town councillor; Mr. John Duncan, town councillor; Mr. C. R. Burnett, treasurer to the corporation; Mr. Atkinson, relieving officer, and others.

The town clerk produced a plan of the town, and Mr. Willoby one of the union.

The evidence taken in open court on the several heads of the inquiry is given in this Report, as also the result of a personal inspection of Berwick, Tweedmouth, and Spittal, to all of which places, as comprising the parliamentary and municipal boroughs—it is my purpose to recommend the application of the Act. A meeting of the guardians was called together relative to recommending the application of the Act to the whole union, which suggestion seemed to meet with general approval, and I can only regret that the Act, as at present framed, cannot be applied *unless with the consent of the corporation, and also with the consent of a majority of the ratepayers in the non-corporate portion of the union* (s. 20).

There are many reasons for the application of the Act to the whole union, and as its adoption, or not, is left with a majority of the non-corporate ratepayers and the consent of the corporation, would respectfully lay before them a brief summary of its advantages for their consideration.

The list of epidemic, endemic, and contagious diseases, as returned by the clerks to the guardians, includes villages and farms as well as the towns.

The cholera has also visited many of the villages, and fever is common in them, thereby indicating imperfect sanitary arrangements and consequent loss. The villages cannot independently avail themselves of the benefits conferred by the Act, as it would not tend to economy that each parish, township, and villa-

should have a separate local board, with a surveyor, &c., to each; and, consequently, unless the unions avail themselves of the town establishments, they must remain in their present imperfect condition, or attempt improvements unadvised and unaided by that scientific knowledge so necessary to perfect efficiency and true economy.

ADVANTAGES TO BE DERIVED FROM ONE LOCAL BOARD FOR THE WHOLE UNION.

1st. No district would be rated but for the work absolutely required to be done within such district, or for its especial benefit, or in common with some other district or districts necessarily combined for a common outfall. The rates would be as detailed in the following abstract from the Act.

The rates leviable under the Public Health Act are, first, public rates, and, second, private rates.

The general district rate may be levied over the whole or part of a district (ss. 87, 89). Arable, meadow, pasture, and woodland, market-gardens, and nursery-grounds, land covered with water, canals and towing paths, and land used as a railway, to be assessed upon one-fourth only (s. 88). The general district rate will consist of the expenses of preliminary inquiry, salaries, &c., of local officers and servants, and certain casual expenses; and all such expenses of executing the Act as are not defrayed by means of any other rate, or out of the district fund account (see s. 87). The district fund account will consist of the proceeds arising from the sale of sewage, &c., penalties recoverable by the local Board, and certain other miscellaneous sums received by them.

Special District Rates (s. 86).—Special district rates will be for making, enlarging, altering, or covering sewers (s. 89). This rate will be levied upon either the whole or part of a district, according to circumstances. But those persons only will be liable whose property has been benefited by the expenses in respect of which the rate is made (s. 86).

Water Rate (s. 93).—This rate will be levied for water supplied for the purposes of domestic use, cleanliness, and house drainage (s. 93). Property to be assessed—the premises supplied (s. 93).

The rates for public and private improvements may be spread over any period not exceeding 30 years, but must be so distributed as to pay off the expenses in respect of which the rate is made, together with interest at not more than 5*l.* per cent., within that period (s. 90).

This power to raise money for *public* and *private* improvements would be of great advantage to all parties, to tenants, lessees, and owners.

2nd. An educated and practical surveyor, with a superior esta-

blishment of workmen, would be employed with advantage and economy to all, or the new work would be let by contract under a sufficient guarantee for its execution and for its maintenance for a stipulated time afterwards.

3rd. The best and cheapest outfalls for land and house drainage would be obtained. This, in many instances, would confer the greatest possible benefit upon the landowner and farmer, especially where single parishes, townships, estates, or villages would be benefited by some work common to several and equally necessary to all.

4th. The streets and roads would be laid out in a proper manner; they would be formed according to acknowledged principles, and their repair and maintenance would afterwards be under practical superintendence. Good roads are among the first requisites of civilization and advancement: these would be properly drained, the same drains in many instances serving the double purpose of draining the adjoining land, as also the road; useless and injurious ditches would be filled up; and one practical paid surveyor would relieve the farmers and others from the present disagreeable duty of acting as road-surveyors against their wish.

5th. The refuse of the towns and villages would be made available, with benefit and pecuniary profit, for agricultural purposes.

Such are a few of the advantages which a combined action under one establishment, would confer; and it is for the landowners, farmers, and ratepayers generally, to adopt or not the recommendation that one local board shall act for the union.

DIVISION OF SUBJECT.—This Report will be found arranged in the following order:—

Firstly. A brief description of the town is given; the form of local government described, the population returns stated, and the titles of such Acts of Parliament as are in force are named; a table of the union rates, and also of the town assessment, is furnished; and a sketch of the geological character of the district, with a short summary of such meteorological facts as have been recorded, are added.

Secondly. The annual mortality is set forth, with the excess of sickness and death over well-regulated districts; and the money loss such excess may be presumed to occasion to the community.

Thirdly. The seats of epidemic, endemic, and contagious diseases, as pointed out by the medical and relieving officers, are named; and the present state and condition of these places are described by evidence taken in public, and by personal observation. Under this head are considered the *Sewage and Drainage—Water Supplies—Lighting—Regulating*—the state and condition of the *Burial-grounds* and of the *Slaughterhouses*.

Fourthly. I have offered such observations, suggestions, recommendations, and practical remarks, as rise out of the several heads.

of inquiry, or which may be applicable to the subject of sanitary works generally.

Fifthly. I have given general estimates for the new works proposed, with a summary of conclusions and recommendations, based upon the evidence, inspection, and estimates.

A Report of great local value, drawn up by Dr. Kirkwood, is added as an Appendix.

REPORT.

Berwick-upon-Tweed.—A seaport, garrison, and market town, situated on the northern bank of the river Tweed near to its mouth, and distant 300 miles N. by W. $\frac{1}{2}$ W. nearly in a right line from St. Paul's church, London, and 47 miles E. by S. $\frac{1}{2}$ S. from Edinburgh; in $55^{\circ} 46' 21''$ N. lat. and $1^{\circ} 59' 41''$ W. long. The usual description of the place is, "the borough of Berwick-upon-Tweed;" but in some ancient deeds it is called "South Berwick," to distinguish it from "North Berwick," on the Frith of Forth. Berwick, or *Berwic*, in Domesday-book and in the old language of the country, has nearly the same signification as grange, granary, and barn: *Bere* is a provincial name for barley. Some persons would derive the name from the Celtic word *aber*—the fall of one water into another; others from *bare*—a naked or barren situation. Wick is the same as *vic-us*, dwelling, town, or village. Berwick is not within any county, but by 5 & 6 Will. IV., cap. 76, it is constituted "a county of a town corporate;" and by 6 & 7 Will. IV., cap. 103, sec. 6, "a county of itself to all intents and purposes" (excepting the return of members of Parliament). The Isle of Wight, the Isle of Man, the Norman Isles, the Scilly Isles, and Berwick-upon-Tweed, are dependencies of the Crown of England not attached to any county. Berwick is, however, represented in the Imperial Parliament, and subject to the laws and supreme courts of England; the Isle of Man and the Norman Isles have laws, legislatures, and judiciary establishments of their own. Since the reign of Philip and Mary (1553, if not from an earlier date), Berwick has returned two members to the English House of Commons. The present members are M. Forster, Esq., and J. C. Renton, Esq. Before the Reform Act the representatives were elected by the burgesses alone, whether resident or not. By that statute the township of Tweedmouth, in the parochial chapelry of the same name in Islandshire, and the township of Spittal, at the mouth of the river, also in the parochial chapelry of Tweedmouth, are added to the Parliamentary borough.

The early history of Berwick, like most of early history, is uncertain; no recorded trace of its foundation, as a place of special residence or town, is known to exist. In the beginning of the twelfth century, during the reign of Alexander I., it was part of his realm of Scotland, and the capital of the district called Lothian. Soon after this date it became populous and wealthy; was the chief seaport of Scotland; contained a strong castle, with churches, hospitals, and monastic buildings, and was created one of the four

royal burghs of Scotland. In 1216 the town and castle of Berwick were taken by storm. During the competition between Baliol and Bruce for the Scottish throne, the English Parliament sat in Berwick; and Edward I., in the hall of the castle, pronounced judgment in favour of Baliol. Bruce retook the town and castle in 1318; but, after undergoing various sieges and pillage, in July, 1482, the town again surrendered to the English; the castle held out until the 24th of August following, when both town and castle were finally surrendered to Edward IV., and have ever since been in the possession of England.

Berwick is a walled and fortified town; of the castle, fragmental portions alone remain; the fortifications are in ruins; the ditches are swampy with stagnant filth, or covered with thistles, nettles, and rank grass; the cannon have been dismounted, though the huge ramparts of stone and earth, on which they formerly stood, remain; the sea washes and wastes the shore and cliffs to the east and north, and the Tweed flows on the south, so that on three sides the town is open to natural means of ventilation, and the site is capable of being well drained. The fortifications are said to protect the town from the extreme violence of the north and east winds; but they also prevent any extension on these sides, and have certainly tended to cramp and crowd the town in upon itself, thereby causing much of the evil to be complained of. The natural facilities for drainage have hitherto been almost entirely neglected. The removal of the old fortifications, or portions of them, would be of great advantage, not only to the health of the inhabitants, but to the trade and growth of the town; and in the present art of war, no fortifications around this place could ever be important; as, on the inland sides, there are commanding eminences, and hollow ways reach almost up to the walls, forming natural approaches.

There were originally four gates—the English gate, at the end of the bridge (now removed); the Scotch gate, on the north; the Cowport, leading to the Magdalen Fields; and the Shore gate, leading to the Quay. The Ness gate has been made within the last forty years.

The *Bridge* of Berwick was swept away by a flood in 1199, concerning which Leland wrote—"It brake with great force of water, bycause the arches were to low; and after the making of it, as it was then, it dured scars ix yeres." It was reconstructed of wood, and so continued till the time of James I., who caused the present bridge to be built. It has fifteen arches, the largest on the Berwick side, to accommodate the port by preserving deep water alongside the quay walls. This bridge occupied in building twenty-four years, four months, and four days, and cost government the sum of 14,960*l.* 1*s.* 6*d.*: it was completed in October, 1634. Compared with the new and majestic railway viaduct it is insignificant.

The principal streets of Berwick are wide and open; the site of

**THE COUNTY
OF THE
BOROUGH AND TOWN
OF
BERWICK-UPON-TWEED**

COMPRISES

	Population in 1841.	Prosent Pop. may be abeat 1849.
N ^o 1. The Parish of Berwick-upon-Tweed.	8484	9000
in the Parish of Tweedmouth { 2. The Township of Tweedmouth.	2574	3000
3. The Township of Spittal.	1631	1800
Total Population within the proposed Boundary	12689	13800

Boundary recommended for the purposes
of the Act, including the above Townships.)
Boundary of the Township of Spittal.

REMARKS.

Berwick	Length of the Town Walls (in Circuit), One Mile & Three Quarters.
	Per 35 Chains, i.e. 5 Chains short of 1/2 a Mile.
Union Chain Bridge	Bridge, from the Bridge Gate to the Landing Abatement on Tweedmouth side..... 924 Feet
Gainshaw Bridge	Distance between the Towers..... 437
Twisell Bridge	Length of the Platform..... 36,
	Ditto..... 198
	Span of the Arch..... 91

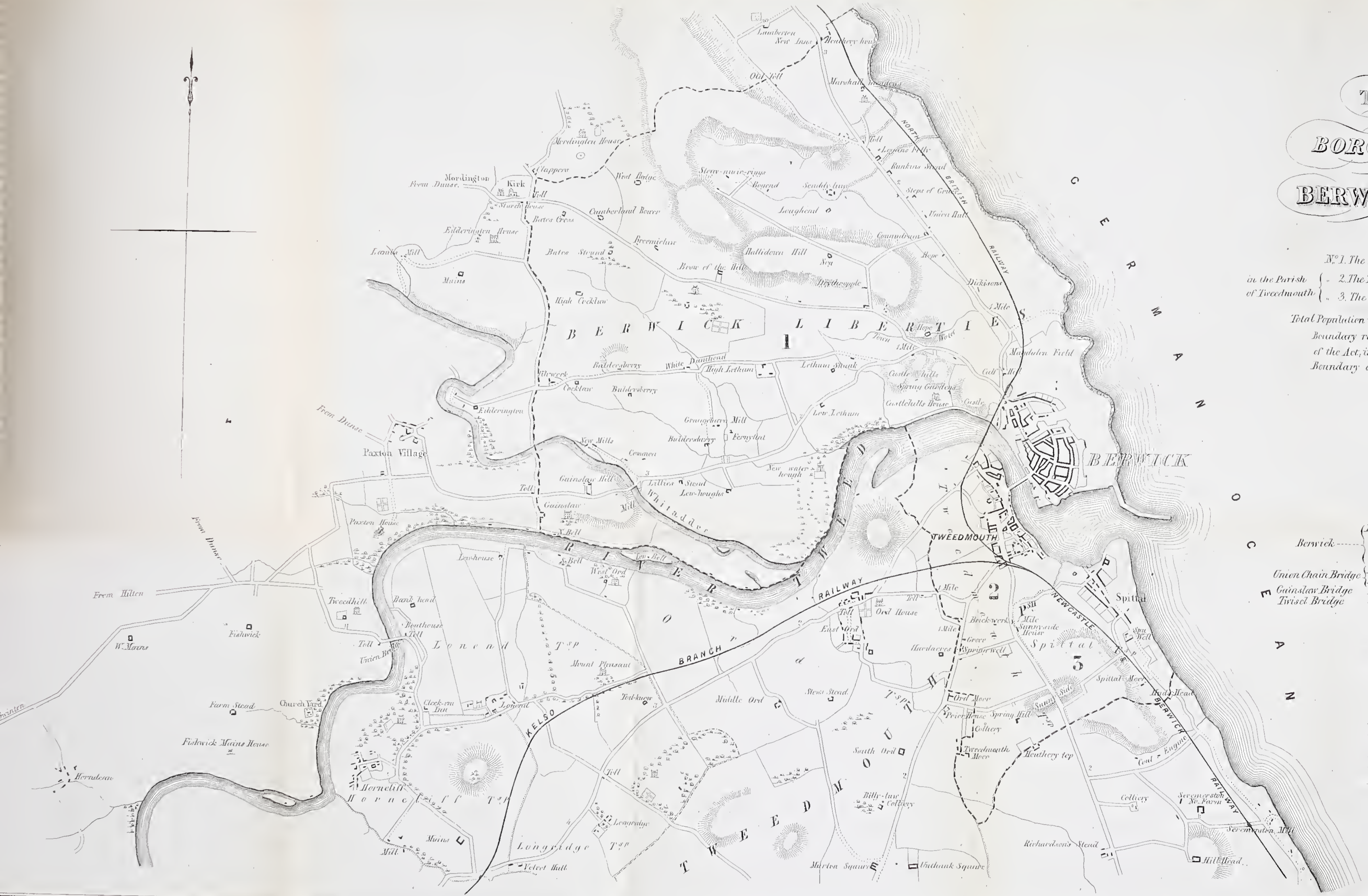
HEIGHTS above Berwick Quay.

Site of Berwick Town Hall.....	40	47
Top of the Spire.....	150	190
Haltidown Hill, in Berwick Liberties.....		535
Sunnyside in Tweedmouth P ^h		284
Kylee Hill.....		570

POPULATION from Returns, 1821.

Berwick P ^h	8725
Norham.....	3906
Tweedmouth.....	1675
Ancell.....	1378
Kylee.....	320
Holy Island (Berwick & Lenham T ^{ps})	266
Island.....	492
Sum	12689

NOTE.
P^h stands for Parish.
T^{sp} stands for Township.





the townhall is forty feet above the quay, and the land has a gradual slope, generally towards the river. That portion of the town in the neighbourhood of the quay is low, flat, and liable to be flooded during heavy rain-fall, for want of proper outlet sewers; and much damage and inconvenience is occasionally suffered in consequence. It must be the object of any new works to remove or abate this evil as much as possible.

Tweedmouth.—That portion of the town of Tweedmouth nearest the river is flat and low; the land on which the back portion of the town stands has a rising gradient inland. Tweedmouth is a place of considerable trade; there is a large iron-foundry, and boat-building is carried on to some extent: for purposes of manufacture it possesses the advantage of collieries in the immediate neighbourhood; and there are no ancient walls, fortifications, or ramparts to cramp its extension, and in consequence it is daily increasing and growing into importance.

Spittal is at present a small village much resorted to in summer as a place for bathing; the shore portion of the village is flat and low, the inland portion as at Tweedmouth is built on land also having a rising gradient from the shore. A full consideration of the natural position of these places is important; as, without properly constructed sewers and drains, the refuse of the higher portions of the towns will continue as now to flow towards and under the houses, and accumulate most injuriously in the lower and more crowded portions. It is this faulty condition of things which in a great measure tends to generate an excess of sickness and mortality.

GOVERNMENT.—As of the town, so of its local form of government, the earliest date is not recorded. The first Edward confirmed the ancient liberties and customs of the borough, and granted it a charter. Queen Elizabeth also granted confirmatory charters; and various Acts of Parliament are to be found in the English Statute Book for the same purpose, the most important of which is one in the reign of Edward IV. (A.D. 1482, in the twenty-second year of his reign). The mayor and four bailiffs were the only officers of the corporation named in the oldest charters; the other corporate officers were the aldermen, dean, and feeryngmen, or affeeringmen, who constituted a court similar to that of a common council, and are mentioned in the “Statuta Gildæ” of Berwick, the first of which were enacted about the middle of the thirteenth century, and also in the guild-books of the reign of Henry VIII. Of the ancient revenues of the corporate body little is known. So early as the reign of Alexander III. they had a prison, called the Berfreyt, and at a subsequent date they were owners of a few acres of ground in the Snook, near the sea-coast. James VI. of Scotland and I. of England, in the second year of his reign over England, granted to the corpora-

tion by charter, confirmed by Act of Parliament, the seignory of the town, and all the lands within the borough, except certain estates which he had previously given to Sir George Hume, and the burgage tenements within the walls which belong to private individuals. This territory measures about 3077 acres, being two-thirds of the whole land within the bounds. It has been by this charter of James that the town and liberties have been governed up to the passing of the Municipal Reform Act.

The Reform Bill had previously constituted the townships of Tweedmouth and Spittal a portion of the Parliamentary borough with respect to the election of members of Parliament; and in 1835, the Municipal Reform Act added Tweedmouth and Spittal townships with a population of 4500 to the boundaries of the municipal borough, making the new parliamentary and municipal borough coextensive.

The Municipal Reform Act fixed the numbers of the town council at 24—six aldermen, and eighteen councillors. The mayor, chosen out of the aldermen and councillors, is one of the twenty-four.

The borough consists of three wards, each of which elects six of the councillors: two of these go out of office each year, but are re-eligible.

The whole number of "burgesses" (that is of those who elect the councillors, auditors, and assessors of the borough) is 651.

Three of the aldermen are each year appointed aldermen of the wards; and their function as such is to preside (each with two assessors) at the ward elections during the year. There are two auditors.

The members of the old corporation are preserved distinct from their fellow-townsmen under the name of "Freemen." They retain the privilege of voting in the election of members of Parliament (along with the 10*l.* a-year occupiers), and divide part of the rental of the corporate lauds among them. Their children are educated (at the expense of the borough fund) at the corporation academy. Betwixt three and four hundred children have this privilege.

By the Municipal Act, Berwick is constituted "a county of a town corporate," with a sheriff, who is elected annually on the 9th of November. The borough retains its court of quarter sessions. The recorder is appointed by the Crown. The present recorder is Robert Ingham, Esq.

There is a gaol in the town.

The council appoint a clerk of the peace, town-clerk, treasurer, serjeant-at-mace, &c.

The annual income of the corporation is about 10,000*l.*

The charter secures the right of weekly markets on Wednesdays and Saturdays, the latter of which is the principal, and it is well supplied with county produce.

The annual fair is held on the last Friday in May, for black cattle and horses; statute fairs are also held on the first Saturdays in March, May, August, and November.

The principal manufactures are such as are connected with shipping; also iron-foundries, engine-building, sacking, cotton hosiery, damask, diaper, carpets, hats, shoes, &c. Ships of 500 tons burthen may ride in safety at the quay. The smacks and small brigs formerly carrying on the whole traffic of the place are now superseded by large and well-fitted schooners and clipper ships. The East Coast Railway passes the town; the station is near the site of the castle. The port has now a considerable coasting trade. The exports are corn, wool, salmon, cod, haddock, herrings, and coal; the imports are iron, hemp, tallow, and bones for manure. About 800 men are employed in the fisheries.

Acts of Parliament in force.—39 et 40 George III., cap. 25. “Act for lighting the Streets and Lanes of the Borough of *Berwick-on-Tweed*, and the Quays and Wharfs belonging to the said Borough, and that part of the Bridge over the river *Tweed* which lies within the Liberties of the said Borough, and also the Street of *Castlegate*, within the said Borough or the Liberties thereof; and for paving the Footpaths of the Streets of the said Borough and of *Castlegate* aforesaid; and for preventing Obstructions, Nuisances, and Annoyances therein.”—16th May, 1800.

“The commissioners for putting this Act into execution are the mayor, recorder, and aldermen of the borough of *Berwick-upon-Tweed* for the time being;” and certain other commissioners qualified and elected as the Act directs.

The working of this Act has been found very defective. It does not give power to make house-drains; and even the clause relating to the removal of nuisances cannot be enforced. (See *Town-clerk's Evidence*.)

An Act made and passed in the 48th year of the reign of George III., intituled “An Act for Rebuilding the Pier and for Improving the Harbour of *Berwick-upon-Tweed*.”

This Act is carried out by commissioners appointed for the proper management and good regulation of the harbour. There is a harbour-master, but no register of the tide is kept. The time of high-water at *Berwick* is calculated from the tables made for other ports. A self-registering gauge, such as that recently erected at the port of *Sunderland*, would be of extreme value and importance. I could not obtain a tide-table either from the harbour-master or at the custom-house, or any table of meteorological observations from any person in the town.

The population of the parish of *Berwick* was, in 1811, 7746; in 1821, 8723; 1831, 8920; 1841, 8484; and in 1849, about 9000: *Tweedmouth*, 3000; *Spittal*, 1800: or for the entire parliamentary and municipal borough, 13,800.

The following is the return made under the census of 1831 :—

Inhabited houses	1190
Families	2118
Houses building	7
„ uninhabited	69
Families employed in agriculture	111
„ „ trade	885
„ „ no trade	1122
Males 3937	} 8920
Females 4983	
Males 20 years of age	1897
Occupiers of land employing labourers	16
„ „ not employing labourers	53
Labourers employed in agriculture	86
„ employed in manufacture	44
„ employed in retail trade or handicraft	952
Capitalists, bankers, &c.	176
Labourers not agricultural	311
Retired tradesmen and persons disabled	244
Males, servants	15
„ „ under 20 years of age	5
Female servants	412
Total number of burgesses, about	1000

COUNTY OF NORTHUMBERLAND.—BERWICK-UPON-TWEED UNION.

LIST of Poor's Rates, 1847.

—	Annual Value of Property rated to the Poor in 1847.	Expended for the Relief of the Poor for the Year ended Lady Day 1847.	Rate in the £. expended on the Annual Value in 1847.	
	£.	£.	s.	d.
Ancroft	13,685	465	0	8 $\frac{1}{4}$
Berwick (W. H.)	28,280	2436	1	8 $\frac{3}{4}$
Cornhill	6,120	272	0	10 $\frac{3}{4}$
Duddo	2,145	163	1	6 $\frac{1}{4}$
Felkington	1,418	77	1	1
Grindon	1,225	23	0	4 $\frac{1}{2}$
Holy Island	5,366	214	0	9 $\frac{1}{2}$
Horncliff	1,499	77	1	0 $\frac{1}{4}$
Kyloe	8,174	422	1	0 $\frac{1}{2}$
Lonnard	2,171	42	0	4 $\frac{3}{4}$
Longridge	926	33	0	8 $\frac{1}{4}$
Norham	4,559	310	1	4 $\frac{1}{4}$
Norham Mains	2,051	54	0	6 $\frac{1}{4}$
Shoreswood	1,489	141	1	10 $\frac{3}{4}$
Thornton	1,634	77	0	11 $\frac{1}{4}$
Tweedmouth	12,989	1345	2	0 $\frac{3}{4}$
Twizel	3,133	152	0	11 $\frac{3}{4}$
Totals	96,864	6303	. .	

ANNUAL ASSESSMENT of Berwick-upon-Tweed, 1848.

	Rental.			Rate at 1s. in the £.		
	£.	s.	d.	£.	s.	d.
Outlying part of parish :—						
Land	13,899	5	0	695	0	11
Fisheries	1,134	15	0	56	14	9
Tithes, &c.	555	17	0	27	15	10
	15,589	17	0	779	10	6
Town	13,169	2	0	658	10	2
Whole parish of Berwick	28,758	19	0	1438	0	8

NOTE.—The sum of 1438*l.* 0*s.* 8*d.* was the amount of rate for six months, at 1*s.* in the pound. The full rate for the year 1848 was 2*s.* in the pound, or a total annual sum of 2876*l.* 1*s.* 4*d.*, out of which is paid over as borough rate one-sixth of this sum, or at the rate of 4*d.* in the pound annually.

Proper sanitary works and regulations are known to have the direct effect of reducing the poor-rate, so that, if it is taken for granted that any new rate for such works will amount to so much as would require to be deducted from the poor-rate, then it becomes a question with the ratepayers whether they will pay for pauperism and misery, or for health and comfort. There is, however, reason to believe that sanitary works will not only reduce the poor-rate, but be self-supporting; and if well managed, such works may be made to yield an income, as in Manchester, where the gas establishment belongs to the corporation, and, after paying all expenses of management, a clear annual income of upwards of 35,000*l.* is produced for the benefit of the ratepayers.

GEOLOGY.—The site of the towns of Berwick and Tweedmouth, with Spittal, is on the lower beds of the great carboniferous formation; on the north are the Cumbrian rocks, which extend across the island from Berwick to Port Patrick, and are found almost in a continuous right line on the east and west of Ireland. The old red sandstone is visible in the neighbourhood to the west, and many porphyritic trap-dykes and cones divide the strata.

Portions of the sea-coast are rocky and abrupt; from the mouth of the river and northwards limestone and sandstone are exposed; the limestone contains numerous remains of encrinites (locally called St. Cuthbert's beads), terebratulæ, and various species of productus; the sandstone is, by the constantly wearing action of the waves, moulded into irregular-shaped pillars and cavities; the jutting rocks give to the surge a circular motion, by which

means the water carries round with it gravel, which acts the part of a drill in boring, wearing, and breaking up the strata. It is this circular motion of water and gravel which in a great measure has moulded and shaped the land, which has contoured the hills and valleys, and which again, on the shores of oceans, seas, and lakes, on the banks and in the beds of rivers, wears and breaks up the hardest, as also the most yielding rocks, to be respread out in the bed of the ocean for newer formations.

Coals, limestone, sandstone, clay, and marl, are obtained in the neighbourhood.

It is stated that in 1770, on excavating a cellar on Hide-hill, quicksilver was found, but no further search has been made for this metal.

METEOROLOGY, &c.—No regular or accurate meteorological observations, as before stated, have been registered in Berwick, but those of Northumberland may be taken as an approximation. The north and east winds are peculiarly severe, especially in spring: frosts prevail much later than in the south, and frequently cut off the young shoots in May. Summer is three weeks later than in Middlesex, and the annual rain-fall is about one-third more. The average rain-fall of the county of Northumberland for several years was 36.45 inches; the average height of the barometer about 29.5, and of the thermometer 47.43. An ordinary spring-tide rises in the Tweed about 15 feet. The river is navigable to the bridge; but the tide flows about seven miles farther up. The entrance to the river is narrowed by sand-banks.

MORTALITY.—There is an excess of mortality in Berwick-upon-Tweed above Morpeth, Rothbury, Alnwick, and Belford, based on the census of 1841.—Population of the districts of Morpeth, Rothbury, Alnwick, and Belford, 47,481; of Berwick-upon-Tweed, 20,938. In well-drained, well-cleansed, and well-ventilated public establishments, typhus and other diseases are rarely found to arise, and when they do arise are much less fatal. The great mass of this class of deaths is proved to be within control, if not entirely preventible. The health of populations in well-drained, well-cleansed town districts has, in particular instances, been increased beyond the average of rural districts, and most certainly the health of the districts above-named may be greatly advanced. The ordinary rate of mortality in Morpeth and Alnwick is more than double that of a well-regulated and healthy district. Under good physical circumstances classes are known to attain an average age of 52 years for all born.

The pecuniary losses charged on the presumed preventible excess of deaths are set down as an average cost of at least 5*l.* for each funeral, and 1*l.* as the expense of each case of sickness. It has been ascertained that, on a broad average, at the least 28

RETURN of Deaths in Berwick and Tweedmouth, from 1844 to 1848, inclusive.

Year.	Name of Place.	Area.	Population in 1841.	First Quarter 30 Mar.	Second Quarter 30 June.	Third Quarter 30 Sept.	Fourth Quarter 30 Dec.	Total.	Average in the Thousand.	Average of both places.	Average for the whole period.	Remarks.	
1844	Berwick.	..	8181	57	42	45	53	197	23.22	} 20.16	}	} These are the returns, so far as they were furnished, complete.	
"	Tweedmouth	..	5202	21	28	18	22	89	17.10				
1845	Berwick.	..	..	52	46	58	61	217	25.57	} 24.70	}
"	Tweedmouth	..	..	30	28	31	35	124	23.83		
1846	Berwick.	..	..	91	58	84	72	305	35.94	} 31.59	} 27.95
"	Tweedmouth	..	..	27	41	50	55	173	33.25		
1847	Berwick.	..	..	73	73	62	94	302	35.59	} 32.27	}
"	Tweedmouth	..	..	37	47	32	45	161	30.95		
1848	Berwick.	..	..	88	39	53	69	249	29.35	} 28.03	}
"	Tweedmouth	..	..	46	36	28	29	139	26.72		
1849	Berwick.	66	78	77		} Returns up to the time of the inquiry.
"	Tweedmouth	..	..	31	30	50	..	..	..	..	..

NOTE.—The annual number of deaths in well-regulated districts is found not to exceed 15 in the thousand.

cases of sickness take place for one death from the same disease-exciting cause: beyond this the premature death of an adult labourer involves a loss of productive labour averaging not less than 10s. per week for each male and 5s. for each female, or 7s. 6d. per week male and female, which, for all classes, skilled and unskilled labourers, will be a low average loss beyond the prime cost of their maintenance.

The more the facts are examined the more it will be found that there is no larger economy than well-directed sanitary means of prevention, and that the pecuniary losses resulting from preventible causes of disease are greatly under estimated, not taking into account the losses from cholera, first in 1832, and latterly in 1849. The application of the Public Health Act will enable the ratepayers to pay for the works necessary to health, morality, and comfort, instead of continuing under the dangerous and far more burdensome taxation attendant upon pauperism, disease, and crime, engendered by filth, overcrowding, and neglect. It will provide a representative local Board for self-government; and, when circumstances require it, will enable them to ask the advice and assistance of the General Board to devise and recommend works necessary to sanitary improvement.

A LIST of PLACES within the Berwick-upon-Tweed Union, where epidemic, endemic, and contagious diseases have of late been frequent.

The shore-houses in the village of Spittal, in the county of the borough and town of Berwick-upon-Tweed.

In the town of Berwick in the following places:—

Weatherly's-square,

Wallace's-green.

Twizel-Stead, in the township of Twizel, Northumberland.

The village of Donaldson's Lodge, in the township of Twizel, Northumberland.

The village of Horncliff, in the township of Horncliff, Northumberland.

At the tollhouse of the bridge across the river Tweed, situate in the township of Loanend, Northumberland.

The village of Grindon, in the township of Grindon, Northumberland.

The Farm-onstead of West Newbigging, in the township of Norham, Northumberland.

The village of Norham, in the township of Norham.

The farm-onstead of Tiptoe, in the township of Twizel.

Dated this 9th day of April, 1849.

(Signed) W. & E. WILLOBY,
Clerks to the Guardians of the Berwick Union.

The following abstract of out-door relief expended, with the remark of the relieving-officer, will show the intimate connexion which exists betwixt the places named as peculiarly unhealthy and excessive parochial expenditure. But this is as self-evident to reason as it is true in fact :—

ABSTRACT of sums paid in Out-door Relief.

BERWICK-UPON-TWEED.

—	Quarter ending March 25, 1849.	Quarter ending June 25, 1849.	Quarter ending Sept. 29, 1849.
	£. s. d.	£. s. d.	£. s. d.
1st week . . .	24 2 9	25 16 3	26 1 0
2nd ,, . . .	21 19 3	24 7 9	27 13 0
3rd ,, . . .	24 8 3	26 14 3	24 15 6
4th ,, . . .	26 6 9	27 7 9	27 0 1
5th ,, . . .	23 13 3	27 9 1	24 6 0
6th ,, . . .	33 9 10	24 4 9	24 14 5
7th ,, . . .	23 6 0	23 11 3	22 19 6
8th ,, . . .	35 18 2	24 9 3	28 0 6
9th ,, . . .	23 2 3	32 9 10	23 1 0
10th ,, . . .	27 6 0	28 3 9	29 2 9
11th ,, . . .	27 0 9	26 0 3	22 12 0
12th ,, . . .	32 17 0	25 15 6	33 16 10
13th ,, . . .	38 13 9	55 6 6	52 10 7
	362 4 0	376 16 2	366 13 2
Average per } week . . . }	27 17 0	28 19 0	28 4 0

The principal part of the expenditure of this parish is caused by paupers who reside in damp and badly ventilated houses in Wallace's-green, Walkergate-lane, and Chapel-street.

(Signed) JAMES B. ATKINSON,
Relieving Officer.

PERSONAL INSPECTION.—On the 1st of November, 1849, in company with the Mayor, Dr. Kirkwood, and the relieving-officer, I made an inspection of those places, situated in the town of Berwick, named as the seats of epidemic, endemic, and contagious diseases, as also of other localities, which are here briefly described.

Wallace's-green.—This is about one of the most elevated portions of the town; the front street is wide and open, the end of the street is, however, blocked up by the ramparts. A sketch of a portion of these houses is furnished in this Report; but any drawing or written description can only convey a weak description of the actual neglect, filth, wretchedness, and misery palpable to sight and smell; and, as in other places, the price paid for these small, crowded, and ruinous tenements is most excessive. The agents, and not unfrequently the owners, of this class of property are little removed from the condition of those who rent it; one

such person resides in the neighbourhood. The relieving officer stated that frequently he was watched by such persons, and, after he had paid the relief, as directed, the landlord or his agent would immediately claim it for rent. So that it may fairly be assumed that the parish pay to the support of the very places which tend to create paupers and increase the rates.

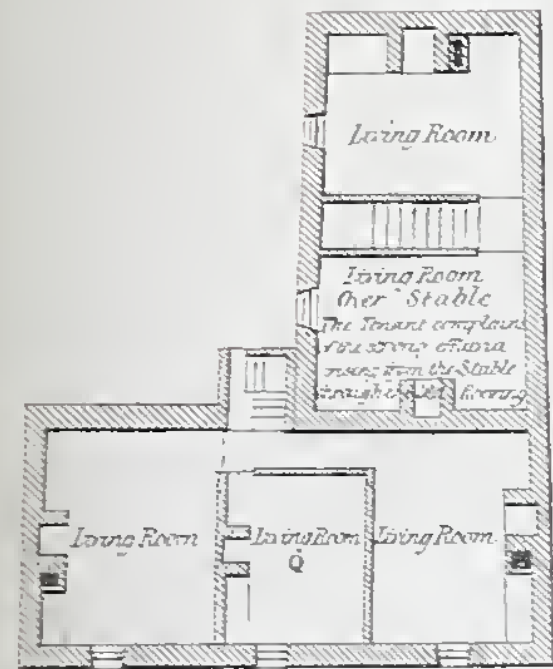
The accompanying sketch will show the general character and appearance of these places. The site is comparatively high, and the street is wide and open, but unpaved; the ramparts, however, block ventilation, and make those houses in contact with them very damp. The plan shows that three cases of cholera occurred in one of these rooms, and that two of the cases proved fatal. It is difficult to delineate even the crowded condition of such places. Their ruinous state and fearful overcrowding, with the consequences, can neither be fully shown nor described. There is no remedy for such property as this but its removal, and it will be wise economy in the local board to arrange that such shall be accomplished. But to regulate common lodging-houses and room tenements, by turning out the crowded occupants and making no provision for their accommodation, is of little avail; this class of persons cannot help themselves to better accommodation; and if they are prosecuted for doing wrong, they should have the means provided for doing right. The model lodging-houses and cottage tenements in London and other places show that such structures may be made self-supporting, which is the great purpose to be accomplished. Mere charity, which consists only in giving relief in money, in too many instances works more harm than good. It must be quite apparent to any person who has inspected the room tenements in Wallace's-green, that no amount of money relief is of any avail in elevating and improving the condition of the recipients so long as they are left to crowd indiscriminately together, men, women, and children; the young of both sexes are alone educated in immorality, vice, and crime. The cost of such structures can scarcely be named as an objection to their reconstruction, seeing that little more than 1000*l.* would remove and rebuild, upon an improved plan, the whole of the property shown, equal to the accommodation of 30 families, or 150 persons. This would be better than expending 8000*l.* on a gaol for the accommodation of 12 prisoners—9 males and 3 females—which has just been completed opposite to the property in question. The front of this building is of hewn and rubbed ashlar: the stone has been brought from Fife, about 70 miles distant, though the neighbourhood abounds with good stone. The elevation is more like that of a palace than a prison; there are bay windows and chimney stacks richly decorated; but inside, proper conveniences have not been thought of or provided. The separate cells are without water-closets, and there is deficiency of space and convenience in every department. I have named these things because



ELEVATION OF BUILDINGS IN WALLACE'S GREEN

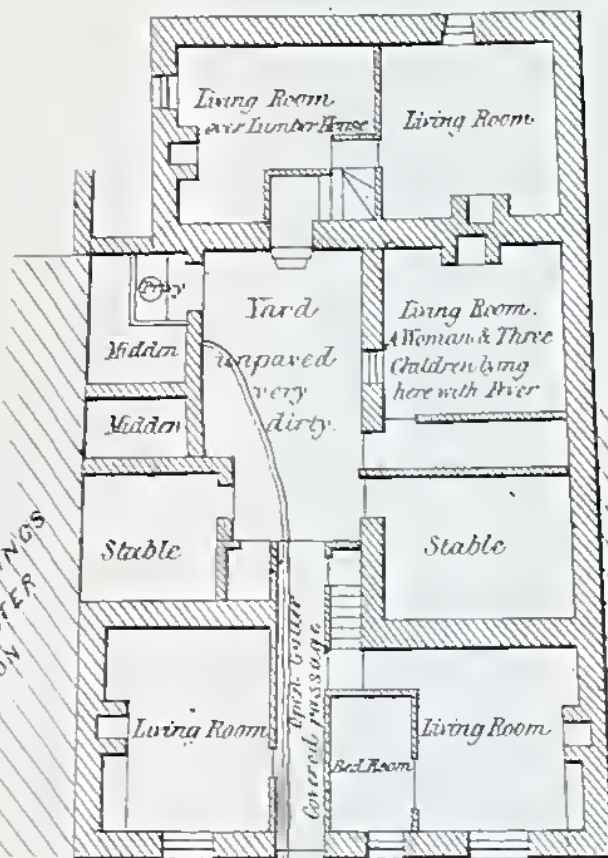
PLANS OF PROPERTY IN WALLACE'S GREEN, OPPOSITE THE NEW GAOL, BERWICK UPON Tweed.

Showing Room Tenements. Each Room is let off as a separate tenement, at an average Rental of 4s per week or £2,12 0 per Annum. This property is described by the Medical and Relieving Officers as never free from fever.



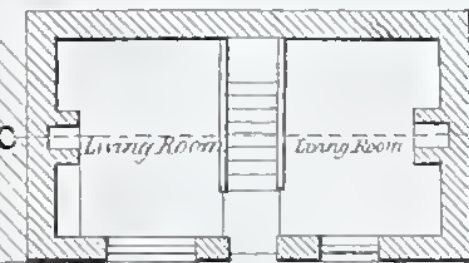
UPPER FLOOR OF PLAN A.

CONTINUATION OF BUILDINGS OF A SIMILAR CHARACTER SEE ELEVATION

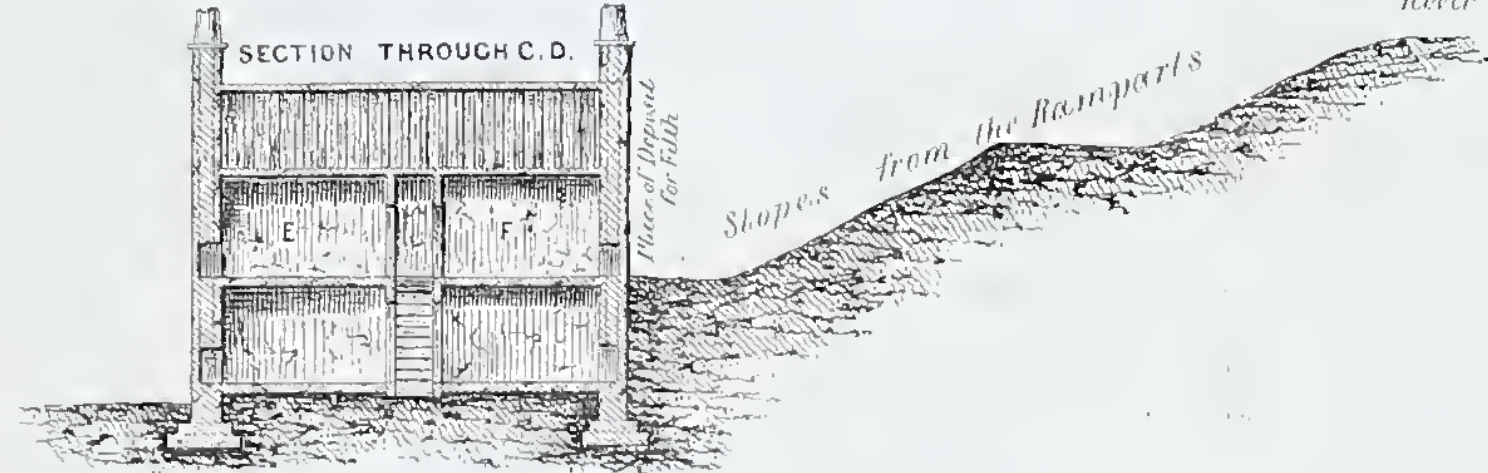


GROUND PLAN A.

BUILDINGS OF A SIMILAR CHARACTER UNITE THE TWO BLOCKS A & B SEE ELEVATION.



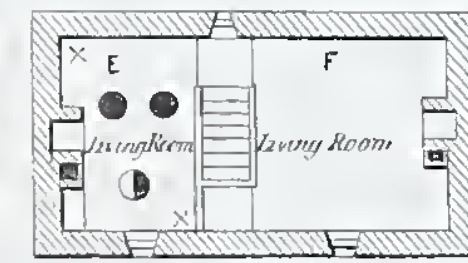
GROUND PLAN B.



SECTION THROUGH C. D.

Slopes from the Ramparts

SLOPES



FLOOR OVER B.

NOTE. In the corners of Room E marked with a cross (X) shavings or rags are laid down for beds

The fatal Cholera Cases are shown thus ● Cholera Cases not fatal are shown thus ○

WALLACE'S GREEN



NOTE. The Room Q little more than 10 feet square, occupied by a Man, his Wife, & Six Children.

they have been very strongly and justly objected to locally, as also to show that proper regard ought to be had for the honest as well as for the criminal.

In these remarks the state of the town is described and commented upon, not for the purpose of casting censure either upon the corporation or upon the owners of the property, but to direct the attention of all parties to the actual state and condition of the people, that remedial measures may as soon as possible be applied. Hitherto there has been no local authority or power to construct a comprehensive system of sewers, with branch-sewers, house and yard drains, and proper conveniences: and the undue crowding of the town is in a great measure due to its past state and condition as a fortified garrison. There are water-works, but they are most imperfect and inadequate to all the requirements and wants of the community.

There is no establishment for regulating and cleansing the streets and passages, or yards and courts, and consequently the nuisances described in this Report are common throughout the district. The appointment of an inspector of nuisances has been only temporary, and house-to-house visitation ceased with the decline of cholera: nuisances once cleansed again accumulate, and pigs once removed from places highly injurious to health are brought back again, or others supply their place. Many of the narrow back streets and passages are either unpaved or the pavement is very much out of repair, and such places are seldom swept. Some of the public walks on the ramparts and in the neighbourhood of the towns are dirty in wet weather; and the outskirts of the towns are not well lighted. Proper regulations would lead attention to all these things.

Samson's-court, Wallace's-green.—The property of this description throughout the town is let off in room-tenements. Those in this court are crowded together. The whole district is without drainage. These rooms are small, the walls are damp, the floors are rotten and in ruins. There are no means of ventilation, and the condition of the inhabitants is wretched in the extreme. They have no furniture, and dirty heaps of shavings and straw in the corners of the room serve for beds. Large middens are crowded in the yards close to the houses. I found 18 persons occupying one small room, 12 of whom belonged to one family. In another room, 6 yards by 5 yards and 6 feet 6 inches high, there were two beds; the floor rotten, and yet the rent paid was 4*l.* a year, collected weekly. This sum would, under proper and well-regulated management, pay the rent of a superior and comfortable set of apartments. The actual saleable value of this room could not certainly be 10*l.*, so that the rent charged is upwards of 40 per cent. paid out of the rates by the parish. Next door to this there is another room, 3½ yards by 5 yards and 6 feet 6 inches high, let at a rental of 2*l.* 12*s.* per annum. A filthy surface-

channel stagnates before the door, and the yard behind is most foul.

How's-court consists of old houses in ruins, but let off in room-tenements at prices varying from 1s. to 10d. a-week. During my visit there was a woman in bed in the last stage of typhus or "Irish fever," three children occupying the bed at the same time.

Highlander's Arms-yard.—One room in this yard I found occupied by 18 persons in the lowest stage of filth, wretchedness, and apparent misery; the rent paid being 1s. a-week.

Parade. Hare's property.—There had recently been three cases of cholera here. The yard behind is small, and without any drain; the privy is crowded close against the pantry. The yard is unpaved and damp. A mound of clay had been formed before the door of one tenement to prevent the liquid filth from flooding the floor.

Church-street.—Behind some property here there is a school which at times is occupied by about 60 children. In an open drain the liquid refuse flows round the outer walls; the windows must open right over this nuisance; there are pigsties and pigs close adjoining. The poor children looked pale and sickly; they are certainly schooled into a practical knowledge of filth, whatever may be the case with legitimate subjects of education.

Chapel-street.—The back yards are confined, and the privies stand close under the windows of the sleeping-rooms. Pigs had been crowded into the same yards. The street is narrow; it is paved with pebbles, but had worn full of holes, which retained any wet or dirt thrown out.

Baxter's-yard is a place full of pigsties; most of the pigs had been removed, but, it may be feared, only to be replaced when official attention has relaxed.

Spence's-yard.—A long and dark tunnel-like passage leads into a confined yard. The rooms on either side are let off as separate tenements. The doors open, or rather lead, into this dark passage, for there is nothing open about it. For two small rooms the rent is 3l. a-year. This is about the usual charge for the other rooms. The woman occupying them stated that she dare not open the window, as the bad smell from the yard made her sick; she would leave at once, but that better houses or rooms cannot be obtained. There were several complaints of the difficulty of working-men obtaining cottages. In the event of the Act being applied, it will be matter for the serious consideration of the local Board to provide or encourage the erection of proper cottages. The poor are in this respect helpless. There are 10 separate sets of tenements approached by the dark passage previously named; some of them are dark at noonday; the stairs are of wood and ruinous; the rooms dirty; the furniture is scanty and broken; some have beds, others rags and dirty straw on the floor. In several of these rooms I saw men in the prime of life, but the

stamp of vice was most painfully visible on every countenance. In one wretched apartment, almost void of furniture, the walls were hung round with halfpenny prints, representing the exploits of Dick Turpin, Jack Sheppard, and other of Ainsworth's worthies. In this place the honest working-man is crowded with the vagrant and criminal; he must jostle past them on the dark stair, and be an unwilling auditor of their obscenity and violent quarrels. The inner yard of this place is paved, but it lies under several inches of accumulated filth, and streams of dark coffee-coloured refuse run down the surface-gutter.

Weatherston's-yard is confined, unpaved, undrained, and dirty; single rooms let for 2*l.* a year.

Gibson's-yard, Walkergate-lane.—This yard is entered by a narrow covered passage; it is enclosed with walls all round. There is a large open midden at the top. The windows of the tenements open on the yard. A chimney-sweep inhabits one portion of the premises. There is no drainage.

Cockburn's-yard is entered by a covered passage not more than 5 feet 6 inches high; the place is confined; open middens crowd the houses; the surface-drains are most foul, and pass out on to the open street.

Bell's-yard, St. Mary's Gate, is a place where many fish are taken and cleaned. In summer the smell is said to be most offensive. Haddocks are dressed and cured in a building behind. During the herring-fishing season this place is most foul. The fish-market is held on the public street in front of the town-hall, and was complained of by some of the shopkeepers in the neighbourhood.

Sand Gate is frequently flooded at the lower end; the houses are consequently damp. The sewage and flood-water is at times 2 or 3 feet deep. The defective state of the drainage also affects all classes of property in *Palace-street*. The drainage flows from the back yards through the passages, under the house-lobbies, and out into a surface-channel of the street. There is also a drain from Foulford, into which water from the gas-works is passed. This drain was much complained of; it passes under several houses, and costs the inhabitants about 3*l.* a-year to clean it out, and yet, at times, the whole neighbourhood is flooded by it. The economy of proper sewers and drains would be very great, not only here, but throughout the whole town. In one house, let at a rental of 16*l.* a-year, the privy and ashpit are underneath one of the bedrooms and close against the lobby-wall of the next house. The parties have to throw water over the ashes to keep down the dust.

TWEEDMOUTH.—The present condition of this portion of the borough is very bad; new streets remain unformed and unpaved, and they are in consequence in a dirty condition; some are almost impassable. This state of things is not only disagreeable and in-

convenient, but such roads and streets are the most expensive to all classes, the land-owner, house-owner, tenant, and general rate-payer. Bad roads require additional power to move every pound weight conveyed over them; they injure horses, strain every form of vehicle used upon them, and tend to the rapid wear and destruction of all descriptions of personal apparel. House cleanliness is almost impossible. As a properly formed and paved road is the best advertisement building-land can have, so is a bad road a direct means of depreciation. There are many nuisances, such as privies and large middens on the sides of the street, in confined yards, and crowded betwixt and upon houses which would in a measure but repeat the condition of Berwick if described. There are also common lodginghouses, slaughterhouses, and pigsties, with their attendant filth and disease. The necessary power is required to correct and regulate all these most injurious and expensive evils.

SPITTAL.—This portion of the borough has recently grown into importance as a summer bathing-place, and if well regulated, and the necessary sanitary works are properly carried out and efficiently superintended afterwards, it can scarcely be doubted but that the increase would be continued, even more rapidly. Many of the roads and streets are unpaved, and all the nuisances described as existing in *Tweedmouth* exist here also to a degree. The advantages of proper management would in no place be felt more fully than in Spittal.

SEWERAGE.—No regular plan or system of sewers has been devised for any of the towns in the borough, and such as have been formed in Berwick act imperfectly, so as to flood the premises they ought to drain. The following evidence was given by Mr. *Burnett*, superintendent of works, who stated,—

“The sewerage that exists in the town is very imperfect. There is no public sewer of any consequence but one in the town; this runs from the gaol down Hide-hill and Sandgate to the river, where it discharges itself. It is, however, very shallow and too small.”

This sewer is not a public one. Dr. *Johnston* stated,—

“That it had been made by the Corporation at their own expense, and was intended only for the conveyance of the refuse from the prison. This drain had an addition made to it about two years ago, when the new gaol was erecting, viz., from the gaol in Wallace’s-green down Church-street to join the old drain at the head of Hide-hill. This is also a private drain, though, while it was making, the inhabitants in Church-street were informed that any of them who chose to make a drain from their own houses into this were at liberty to do so. Only two householders had taken advantage of it. This sewer, communicating from the new gaol in Wallace’s-green to the river, is the principal one in the town, but it is not sufficiently deep to allow the refuse coming from Woolmarket to escape. It is so shallow that in very wet

weather it bursts through the street at the foot of Church-street, inundating Hide-hill; and a similar result takes place at the foot of Sandgate, where, through the openings, it also overflows the street. There is a drain in Woolmarket communicating with this sewer; it was enlarged some years ago, and the whole sum expended upon it amounted to about 200*l.* It might be, perhaps, 200 yards long."

Where drains are made in detached parts without any proper plan, they are not likely to act in concert when joined; the outlet is either too small or too high.

Dr. *Cahill* stated,—

"That the sewer in Church-street is so much deeper than the one in Hide-hill that the filth must accumulate in a mass at the foot of Church-street before it could go down Hide-hill."

In reply to a question as to whether there are any cellars in the town, and whether there is any drain for them,

Dr. *Johnston* said,—

"There are several cellars; almost every house has one. These, in the upper part of the town, are often filled with water; they require to be frequently pumped out. There is no drain for them."

The evils of inefficient drains are numerous; they soon become a nuisance instead of the means of removing nuisances. The first cost of the drain named above is excessive, and the annual expense such imperfect drains lead to is many times the cost of the most perfect system of well-devised sewers and drains.

George Gilchrist, Esq., said,—

"That in his house in Ravensdowne he had a cellar which he required to get frequently pumped out. It required sometimes to be pumped for an hour at once. He estimated the expense of this operation, on an average, at 2*s.* per week, but it was done by his own servants."

Thus Mr. *Gilchrist* considers he pays an annual rental equal to 5*l.* 4*s.* The actual cost ought not very much to exceed the 4*s.* if levied as a rental, which the local Board will have power to do. And for this the drains would be perfect in their action.

Mr. *Joseph Brown*, mason, stated,—

"There is a drain in Castlegate, but it is a very small one, and of very inconsiderable length."

The danger and inconvenience to the inhabitants of houses which communicate with or are near to untrapped drains are thus described by Dr. *Johnston*, who said,—

"There is an old drain leading from the High-street through Golden-square to the river, into which a drain communicates from the Corporation Academy. This drain, which was made for the accommodation of the old main guard—many years ago removed—was so constructed, that when the wind blows from the west the stench is so great as to render the houses in the lower part of Golden-square not fit to be

inhabited. 'The smell is most abominable, and this has frequently caused parties to remove to some other part of the town. It is decidedly a great nuisance, and will exist so long as the drain from the Corporation Academy existed, or until it is altered.'

It will be remarked from the Doctor's evidence, that the imperfect drainage described is not only injurious to the health and comfort of the inhabitants, but is also seriously injurious to the landlord, as change of tenants implies loss of rent and damage to his property. One week's rent of any house, in some cases less, will pay for the necessary sewers and drains; and if the refuse is turned to the best account, a system of sewers and drains may not require any rate. The following evidence is of value to the rate-payer, as showing that dirt and disease have a direct connexion not only with the locality in which they are engendered, but with the whole town.

Dr. *Kirkwood*, parish surgeon, stated,—

"I have been requested to call your attention to a drain from Foulford to Palace-street, which goes underneath the house of Mrs. Turner. Into this drain the soil from several privies is emptied, and the stench is described as being unendurable. I have been told that it is so bad as to blacken the silver in the houses. The nuisance caused by the smell is undoubtedly very great. I am personally acquainted with the state of the town generally. In those parts where disease has been most prevalent it is in a most deplorable condition. I have always found that if we have a foul district there disease is most prevalent, either in the form of fever or cholera. The existence of filth in one part of the town has also an effect on other parts in causing scrofula. I have observed this to be the case very much in Wallace's Green. It has hitherto, till very lately, been the practice to retain refuse for a considerable time about the dwellings of the inhabitants, but about six weeks ago the Board of Guardians ordered its removal, and appointed an inspector of nuisances to see their order carried into effect. By order of the Board of Guardians I also some time ago made a Report to them on the state of the town."

This Report Dr. Kirkwood handed in: it will be found in the Appendix.

The drain named in the following evidence is alluded to in the remarks I have embodied on my inspection of the town. Dr. Johnston has also described it, but Mr. Marshall spoke of it as a personal sufferer.

Mr. *Marshall*, solicitor, said,—

"The drain in Foulford passes under part of my property. The soil of several common necessities falls into it, and from the accumulation of filth, straw, &c., it is often blocked up, and is continually in the most abominable state. It is a perfect nuisance, and a great eyesore. The drain runs behind my house; it often floods the back yard and house, and the smell is sometimes intolerable."

The *Town Clerk* here drew attention to the practice, very generally followed, of emptying the middens at all hours of the day,

and allowing the refuse to remain, for a considerable length of time before removal, on the open street. There may be seen occasionally the contents of three or four middens in one day lying on the same street. He said,—

“ We have no power to prevent it. We have a local Act which says that this (*the refuse of the middens*) shall not lie upon the street for a longer time than it will require to remove it—that they (the middens) shall *remain only for a reasonable time*; but this ‘reasonable time’ is very often decided by the parties themselves. I have seen it lie upon the street from seven in the morning till four or five in the evening.”

The local Act is powerless with respect to such nuisances as the one complained of, and the farmers in the neighbourhood, who usually remove this refuse, which they use as manure, after being emptied from the middens to the street, allow it to remain there till it suits their convenience to take it away. These farmers sometimes pay for this manure, but in the generality of cases parties pay to get it taken away.

W. Willoby, Esq., said,—

“ That the accumulation of this manure often takes place for weeks and months. There being no public depôt where the inhabitants can deposit this refuse, which is sometimes ashes alone, sometimes ashes and the privy soil mixed, they (the poor) have no remedy but to allow it to accumulate about their dwellings. No one had ever been induced to offer to contract for the whole refuse of the town; but if the whole refuse is placed under the control and management of a proper establishment it may be removed at once, and by being placed in some depôt, where it will not be a nuisance, the value of it may be obtained.”

The *Town Clerk* stated,—

“ That the corporation could not make bye-laws to enforce the removal of these heaps of refuse, because the local Act intervened and prevented them.”

The liquid filth no doubt renders the solid refuse more injurious, as detailed by

Dr. Cahill, who said,—

“ I think that the injurious effects caused by the collection of these heaps of manure are owing to the want of drainage, because, from there being no drain to carry away the dirty water and filth of the houses, it is all thrown together, and the mixture of this with the ashes no doubt increases the offensiveness of these middens, and must contribute to the promotion of disease.”

Under a proper system of cleanliness there never would be more than a few days', or at the longest a week's, accumulation of this refuse, because the local Board would arrange for it to be regularly cleansed. With a proper force of scavengers any accumulation would be avoided. Another great advantage will be, also, that the inhabitants will have a clean yard, and the solid refuse will be

merely that made from the fire and the house. All the liquid will pass at once through the drains. With respect to the present use of waterclosets,

The *Town Clerk* stated,—

“I think there are some *waterclosets* in the town where the soil is intended, and does, merely drop down into a large hole (or cesspool) made for the purpose, and where it accumulates, and is seldom removed. I believe there are several of these in the town.”

These cesspools, as shown by the reports on other towns, are not only more expensive than proper drains in the first instance, but they are a source of constantly recurring expense ever afterwards, added to which they are proved to be highly dangerous and injurious to health. They are, in fact, retorts where the most deadly gases are generated.

As there were several medical gentlemen present, I consulted them with respect to the condition of the town and the state of the worst districts, and beg to offer the evidence to your Honourable Board, as it was received.

Dr. *Cahill*, as the senior physician, said,—

“I have heard the Report read by Dr. Kirkwood.* If the town was properly cleansed, I decidedly think it would contribute much to its health. I think it is generally healthy, but it might be improved. Dr. Kirkwood’s description of these filthy localities is perfectly correct. I have visited some of the poorer dwellings in these localities at night, but Dr. Kirkwood, as parish surgeon, visits them more than I do. I have seen 12 or 14 persons occupying one room, and perhaps among the whole no more than two beds. The rest huddle together in straw upon the floor.”

[Mr. *Fluker* here mentioned that he attended a case of cholera in Wallace’s-green on Friday night last, and counted 13 persons in the same room.]

Dr. *Cahill* continued,—

“We have no local control, as a corporation, over these lodging-houses. They are not licensed, and we cannot take compulsory measures to prevent them from receiving so many persons at once. I believe Mr. Atkinson, the relieving officer, endeavours, as much as possible, to prevent this overcrowding. We have no permanent or temporary hospital to which to remove cholera patients when they are attacked. At a meeting of the medical gentlemen lately, it was suggested to the Board of Guardians to provide such an hospital. There can be no doubt it would be of much benefit.

“In cases of fever or cholera, the patients ought to be removed immediately. I am inclined to think the cholera is an epidemic, but not contagious to the extent some authorities state. I think in certain circumstances it may become infectious.”

* This Report is given at length in the Appendix.

Mr. *Fluker* :—

“ In the place where this case of cholera occurred on Friday night, they told me that a few nights previously there were as many as 21 persons in the same room. There was scarcely a drop of water among the whole, and almost no fire. When I saw the man in cholera, there were three or four children lying in the same bed of straw beside him. There have been two deaths from cholera in that house, and some of the children have since had premonitory symptoms ; but I have not remarked any particular effect of direct contagion from cholera appearing in such an overcrowded place. A regular house-to-house visitation was commenced on the 1st of October by Dr. Kirkwood and myself, by order of the Board of Guardians, which has been continued ever since.”

Dr. *Johnston* :—

“ I have no additional information to give. For the last six weeks we have had a case of cholera now and then, but it shows no tendency to spread.”

Dr. *Kirkwood* here remarked that there had just been 21 deaths since the 1st of October, when the system of regular house-to-house visitation was instituted.

Dr. *Johnston* :—

“ At this present moment, and for a few weeks past, the town has been unusually healthy ; previously to that there was a great deal of diarrhœa. We have not much fever in the town. During the last two years we have had more typhus fever than I have ever observed before ; but during that time there have been a great many Irish paupers among us. Fever is not a common disease among us ; it is brought here by these Irish paupers. This was particularly the case during the time the railways were making. The common complaints are rheumatic affections and catarrh—not consumption, of which comparatively few cases ever occur in this town. In 1832 we had, I believe, 298 cases of cholera, and upwards of 100 deaths.”

Dr. *Edgar* stated,—

“ I have merely to corroborate, in a general way, the previous statements with regard to the filthy condition of those places which have been so accurately described. Fever is more sporadic than endemic or epidemic in this town. The railway labourers have been the means of bringing fever here from different parts of Scotland. Most of these labourers have now removed from the locality, but during the time they remained here I observed different kinds of fever to prevail, no doubt generated by these persons. In regard to the infectious nature of cholera, I am decidedly of opinion that it is very slightly infectious ; and that, with due care and ventilation, there is no more danger to be apprehended from infection from cholera than from any ordinary case of erysipelas or dysentery. I have had only three cases of cholera under my care, none of whom have died. In washing the clothes of patients who have died of cholera, I do not think any danger is to be apprehended.”

Mr. *Thomas Hubback*, referring to the want of proper drainage, said,—

“There was a part of his house very damp, which he could not get drained for want of a sewer in the street. There was evidently a spring which caused the continual dampness. For the same reason, the soil of his watercloset runs into the open kennel in the street. This is also the case with many other houses. It cannot at present be avoided.”

Mr. *Willoby* said,—

“That this is the fact with many houses on the east side of Ravensdowne. They run into the open kennel by small conduits beneath the flags. The new sewers and drains will, I suppose, be laid at such a depth, and be so arranged, that the foundations will be rendered perfectly dry.”

WATER SUPPLY.—The present supply of water is partially by rude and imperfect works belonging to the corporation, and partially by private wells and pumps. The public supply is drawn from two sources, “the Ninewell Eyes” and “the North Course.” The Ninewell Eyes water is from springs and surface land-drains; the North Course is a surface catchment, and is conducted along an open channel; this water is frequently very muddy. Specimens were obtained Sept. 11th, 1849, and they were said to be fair average samples of the water as supplied for use. The following is an analysis of these waters by Dr. Lyon Playfair:—

	Hardness.
No. 1. “Ninewell Eyes”	23°
No. 2. North Course”	26°

“Remarks.—No. 2 contained 115½ grains of dirty deposit in each gallon. On exposure to the air it became more turbid, and was altogether most objectionable.

(Signed) “LYON PLAYFAIR.”

There are no impounding or filtering reservoirs for this water, and it is not generally or regularly supplied under pressure, but is conducted to public “pans,”* from which the inhabitants fetch it, frequently from considerable distances; some parties have a small branch-pipe carried into their houses called a “sprig,” for which they pay 5s. a-year. The supply is not, however, constant, as the pans are frequently deficient in a dry season when water is most required, and the house-sprigs do not at such times yield water for several days together. The wells give extremely hard water, and some of it is said to be totally unfit for domestic use.

* Pant, a local term for a fountain or public trough, with a pump or open spout attached.

Comparative Cost of this Water with one of four degrees of hardness.

Berwick Water.	Actual Hardness.	Curd Soap to form a lather with 100 Gal- lons of Water. $\frac{1}{4}$	
Ninewell Eyes	23°	49 ozs.	
North Course	26°	56	
		—————	
		105	
		—————	
Water of	4°	52½	average.
		9½	
		—————	
	Difference of	43	in excess.

Or 2lbs. 11oz. of soap must be used with each 100 gallons of the Berwick water more than would be required if a water of 4° of hardness were supplied. This, taking soap at 5d. a pound, would make the extra cost in washing 1s. Soft and pure water ought to be supplied at a cost not exceeding 3d. each 1000 gallons. Hard and dirty water is not only injurious to health and wasteful of soap, but it is equally obnoxious and wasteful for all purposes to which water can be applied for domestic or manufacturing use. All decoctions, such as tea, &c., are injured in flavour and rendered more expensive; steam-boilers are furred up and rapidly destroyed by hard water, and much more fuel is required to boil it.

The cost of the present works since 1842 has been about 1400*l.* The present income is about 60*l.* a-year. An improved and full water-supply is very much required, as the following evidence will show :—

Dr. Johnston stated,—

“The water is supplied to the town by the corporation. This is a duty they had taken upon themselves; but they do not supply the inhabitants with water. They allow every inhabitant who chooses to have a pipe from the public course (or “main”), for which they charge 5*s.* or 5*s.* 6*d.* a-year. But they are obliged to supply the town with water in public pants free. The inhabitants are never prevented from laying down a pipe. The water is obtained from springs in the neighbourhood, and the supply might [in his opinion] be most abundant; the whole town could be supplied if all the inhabitants were willing to take it. But the town has this year suffered very severely from the want of a proper supply, and the impurity of that which is obtained. [Dr. Johnston here referred to the reports of Mr. Jardin and other engineers.] These reports showed the way in which the water should be brought into the town, and the supply which the various springs were capable of affording. I have no hesitation in saying that the supply is very deficient, and ought to be increased. In rainy weather it is as bad as the water in the open kennel in the street. At the springs the water is most beautiful; it is of the very best quality; but one reason of its impurity I understand to be, that the farmers are allowed to drain their fields into the common watercourse.”

Mr. *Archbold*, plumber, said

“that some drains run into the old watercourse, which communicates with the new course at the Jinglyng Bridge.”

Dr. *Johnston* said,—

“I have two pipes in my house, and for four months I have not had a drop of water in either of them. In Chapel-street, one of the poorest and dirtiest localities in the town, I am told that they never have water except at six o'clock in the morning, and then only for half an hour.”

GAS-WORKS.—*Berwick-upon-Tweed.*—There are two establishments from which gas is supplied to the town and district—the Old Company and the New Company.

Old Gas Company.—The Old Gas Company was formed in 1822 by deed of partnership, with a capital of 2500*l.*, which has since been increased to 4000*l.*

The works consist of 22 circular retorts, 12 inches diameter, and one D retort equal to two of the circular form. There is one gas-holder, and the works are capable of making 10,000,000 of cubic feet of gas annually.

The first price for gas was by the single jet, and 1*l.* 10*s.* per annum was charged for each (a small jet), with a restriction that it must be turned off each night at ten o'clock. The first charge by meter was 12*s.* per 1000 feet, reduced to 10*s.*, and in 1845 to the present price, 8*s.* per 1000 feet. This company does not at present light any of the public lamps in Berwick. The gas is made from bituminous or “cannel” coal, is purified with dry lime, and is said to be very brilliant and pure.

New Gas-works.—The Berwick and Tweedmouth Gas-light Company, Registered, was formed in 1845, capital 6000*l.*, in shares of 5*l.* each. There is one gas-holder, 14 circular retorts, 1 foot 1 inch diameter, and 8 feet long each, set up, with provision for five additional; not more than 11 are used at any one time. The present works could produce 60,000 cube feet of gas per day, but the largest make does not exceed 30,000 cube feet each day: the price per 1000 cube feet is 8*s.* This company light all the public lamps in Berwick at a charge of 2*l.* 4*s.* per annum each lamp; the commissioners find the lamps; the company light, clean, and maintain them. The lamps are furnished with a No. 2 patent jet. A No. 2 patent jet consumes per hour $2\frac{2}{10}$ cube feet, a No. 2 batswing $3\frac{2}{10}$ cube feet. This company fire their retorts from both ends, using coke in one furnace and gas-tar in the other.

Both companies allow a discount to large consumers: on 10,000 cube feet annually a reduction of 5 per cent., 20,000 cube feet annually 10 per cent., and a further discount by especial contract. Tweedmouth is lighted with gas, but Spittal not.

The prices charged for gas are very various throughout the towns in England. There is no recognised rule or standard of charge;

out each company obtains, apparently, that which the directors consider the best price; and unfortunately for themselves and for the public, they in general consider a high charge the best; this, however, is not the case; the company at Whitehaven clear 10 per cent. on 4s. per 1000 feet: the company at Taunton are in difficulties, with a charge of 7s. per 1000 feet.

Comparative cost of Gas in several Towns.

	s.	d.
Berwick-upon-Tweed, gas is charged per 1000 feet	8	0
Dover, gas is charged per 1000 feet	7	6
Watford, gas is charged per 1000 feet	8	0
Birmingham, gas is charged at prices varying from 6s. 8d. to	3	9
Wolverhampton, gas is charged at prices varying from	5s.	to 4 6
Whitehaven, gas is charged per 1000 feet	4	0

In Wolverhampton the price of gas was, on the establishment of the works, 15s. per 1000 feet; subsequently reduced to 12s. 6d., 10s., 8s. 4d., 6s. 8d., and now 5s., and to large consumers 4s. 6d.: in Berwick, 12s., 10s., and now 8s., and probably a further reduction would pay the best.

In Whitehaven the price of gas in 1830 was 12s. 6d. each 1000 feet; subsequently reduced to 10s. 8d., 8s., and now 4s.; and the chairman informed me that at this latter price they expected to divide 10 per cent.

Public lamps are paid for at the following rates in the several towns named:—

	£.	s.	d.	
Berwick-upon-Tweed	2	4	0	per annum.
Dover	3	3	0	„
Birmingham	3	10	0	„
Wolverhampton	2	16	4½	„
Whitehaven Town	3	0	0	„
Whitehaven Harbour	4	2	0	„
Rugby	2	10	0	„
Coventry	3	0	0	„
Watford	4	0	0	for eight months each year only.

That a town should be well lighted is of the first importance, whether considered in a social or moral point of view; but even as a matter of police it is cheaper to pay for the necessary lights rather than leave the worst districts in darkness. Not only should the main streets and squares be regularly lighted, but also the back streets, courts, alleys, and ramparts. A lamp tends to the comfort and safety of the inhabitants, and also prevents much mischief and immorality. If three lights can be placed and maintained for the price now charged for two, and equal advantage be derived by the gas companies, in a generally increased con-

sumption throughout the town, all parties will be alike benefited. A price which is profitable in Whitehaven and Rugby will, with wise management, be found advantageous in Berwick. Extravagant charges defeat their own purpose, as they diminish consumption, beget discontent, and sooner or later produce rivalry.

This latter has been the case in Berwick, and the district now supports two establishments where one would have been amply sufficient.

BURIAL-GROUNDS.—*Berwick.*—The principal burial-ground is the yard attached to the church, and as this has been in use since 1652, it has become unduly crowded. A desirable addition might be made if the rampart adjoining was removed, or if the ground immediately on the outside could be appropriated for burial purposes. An archway through the rampart would connect such ground with the church. The following return was handed in by the present incumbent :—

QUERIES issued under the Statute 12th & 13th Vict. cap. 3, sect. 9 & 11, in respect to intramural interments in the Metropolis.

- | | |
|---|--|
| 1. What is the name of your church or chapel? and in what parish or district is it? | Trinity Church. Parish of Berwick-on-Tweed. |
| 2. Have you any consecrated burial-grounds, and where situate? | The churchyard only. |
| 3. What is the extent of each in square yards, as near as you can tell? | A little under 2 acres. |
| 4. About what quantity in each ground (stated in square yards) has been appropriated by faculty or by purchase? | None. |
| 5. About what is the quantity of the above of which the owners are at present unknown? State the quantity in square yards? | |
| 6. Are the burial-grounds, or all or any of them, open for use? | Yes. The churchyard. |
| 7. If closed, when, and by what authority? | |
| 8. What is the extent of the vaults, tombs, or brick graves under the church or chapel? how much of same is occupied? State generally what interments have taken place under your church or chapel, and still continue to take place? Is there room for many more interments in them? | A few tombs or brick graves but very few; and none will future be permitted—I mean interments. |
| 9. Are there any other burial-grounds in your parish or district | None. |

not connected with the Church of England; and if any, what, to what extent, and by whom held?

10. What is the population of your parish or district?

About 9000 in the parish.

11. Please to state, if you know, the number of deaths annually?

I don't know.

12. What was the total number of interments within the burial-grounds, vaults, tombs, within your parish or district, connected with your church, in the years .

1842	.	.	.	.	161
1843	.	.	.	.	183
1844	.	.	.	.	176
1845	.	.	.	.	205
1846	.	.	.	.	278
1847	.	.	.	.	268
1848	.	.	.	.	241

Total 1512

I cannot answer this question.

13. Please to state the relative proportion of the persons of the several classes interred, as far as you are able, specifying

1. The gentry and professional persons.
2. Tradesmen and shopkeepers.
3. Mechanics and labourers.
4. Paupers.

NOTE.—If the rank of the parties interred be unknown to you, please to state the proportions of those buried in vaults, in private graves, and in public graves. The answer to this may partly be derived from the rate of fees paid on occasion of each interment, and may be set forth in the annexed Schedule.

14. How and when was each burial-ground obtained? by immemorial occupation, by purchase, or by gift?

None by purchase or gift. Some by immemorial occupation, and others as the sexton found room for them.

15. Do you know whether the burial-ground is subject to any permanent charge either to the incumbent or to any one else?

To no one.

NOTE.—Such cases as where the vicar's glebe has been taken for a burial-ground; or a fixed sum is paid to the incumbent in lieu of fees; or money borrowed for the purchase of the ground on security of the rates or fees?

16. Do the parishioners pay any fee to the churchwardens for interment in the burial-ground, or do the incumbent, clerk, or sexton only receive fees?

Churchwardens receive none. The others do.

17. To whom are the fees paid, if yours be a district church or chapel?

To the clerk, and then divided by the claimants.

18. How long is it probable that the present burial-ground will be sufficient for the purpose of burial?

I should think for several years.

19. Are the grounds surrounded by dwelling-houses or other buildings, and to what extent, or in what manner enclosed, and what is the relative level of the burial-ground compared with the adjacent streets?

No. There is an abutment of one house only: the yard is walled about on a level with the highest part of the town.

20. On what days of the week, and at what hours, are funerals most frequent?

Two o'clock, and no exception to any day for funerals.

21. Enclose a copy of table of fees relating to interments, monuments, tablets, &c., both in respect of church and chapel, and of church and chapel burial-grounds?

4s. 2d. in the churchyard; 2l. 2s. for burials in the church; 3l. 3s. for monuments in the church; none for outside monuments.

22. Who receives orders for the interments in the burial-grounds, vaults, &c.? And who selects the sites for interments—the clerk or the sexton? And who keeps the register?

The sexton: The vicar.

23. Have you any suggestions to offer in reference to burial-grounds? If so, please to state them.

No.

The excess of burials in the years 1845, 6, 7, and 8, was owing, in my opinion, to the great increase of population during the making of the railways, bridges, &c.

(Signed) JOS. BARNES, Vicar.

Berwick, 5th November, 1849.

Tweedmouth.—The church in this place is old, and the burial-ground attached to it is unduly crowded, as stated by the reverend incumbent in the accompanying return. A new public cemetery is very much required.

QUERIES issued under the Stat. 12th and 13th Vict. cap. 3, sect. 9, and 11, in respect to intramural interments in the Metropolis.

1. What is the name of your church, and in what parish is it?

St. Bartholomew, in the parish of Tweedmouth.

2. Have you any consecrated burial grounds, and where situate?

Only the churchyard annexed to the church.

3. What is the extent of each in square yards as near as you can tell?

About 4840 square yards.

4. About what quantity in each ground (stated in square yards) has been appropriated by faculty or by purchase?

None of it has been appropriated by faculty or purchase.

5. About what is the quantity of the above of which the owners are at present unknown? State the quantity in square yards?

None of it is claimed, nor has ever been held, by any private owners.

6. Are the burial-grounds, or all or any of them, open for use?

The churchyard is open for the use of the whole parish at present.

7. If closed, when, and by what authority?

Open.

8. What is the extent of the vaults, tombs, or brick graves under the church or chapel? how much of same is occupied? State generally what interments have taken place under your church or chapel, and still continue to take place. Is there room for many more interments in them?

There are no vaults, tombs, &c., of any description under the church.

9. Are there any other burial-grounds in your parish or district not connected with the Church of England; and if any, what, to what extent, and by whom held?

None.

10. What is the population of your parish?

5202 by the census of 1841, but now very much increased.

11. Please to state, if you know, the number of deaths annually?

About 130.

12. What was the total number of interments within the burial-grounds, vaults, tombs, within your parish or district, connected with your church, in the years

1842	.	.	.	.	100	burials.
1843	.	.	.	.	107	"
1844	.	.	.	.	84	"
1845	.	.	.	.	117	"
1846	.	.	.	.	173	"
1847	.	.	.	.	172	"
1848	.	.	.	.	138	"
Total					.	.	591

13. Please to state the relative proportion of the persons of the

several classes interred, as far as you are able; specifying

- | | |
|--|----|
| 1. The gentry and professional persons | 7 |
| 2. Tradesmen and shopkeepers | 40 |
| 3. Mechanics and labourers | 60 |
| 4. Paupers | 23 |

Note.—If the rank of the parties interred be unknown to you, please to state the proportions of those buried in vaults, in private graves, and in public graves. The answer to this may partly be derived from the rate of fees paid on occasion of each interment, and may be set forth in the annexed Schedule.

14. How and when was each burial-ground obtained? by immemorial occupation, by purchase, or by gift?

By immemorial occupation, as annexed to the church.

15. Do you know whether the burial-ground is subject to any permanent charge either to the incumbent or to any one else?

It is not subject to any permanent charge to any person.

Note.—Such cases as where the vicar's glebe has been taken for a burial-ground; or a fixed sum is paid to the incumbent in lieu of fees; or money borrowed for the purchase of the ground on security of the rates or fees?

16. Do the parishioners pay any fee to the churchwardens for interment in the burial-ground, or do the incumbent, clerk, or sexton only receive fees?

The incumbent, clerk, and sexton only receive fees.

17. To whom are the fees paid if yours be a district church or chapel?

Not a district.

18. How long is it probable that the present burial-ground will be sufficient for the purpose of burial?

It is at present insufficient for the population.

19. Are the grounds surrounded by dwelling-houses or other buildings, and to what extent, or in what manner enclosed; and what is the relative level of the burial-ground compared with the adjacent streets?

It has dwelling-houses on three sides, the rest enclosed by a stone and mortar wall, and is about five feet above the level of the adjacent streets.

20. On what days of the week, and at what hours, are funerals most frequent?

On Sundays about four o'clock, or immediately after the Evening Service. They are also frequent on the week-days.

21. Enclose a copy of table of fees relating to interments, monuments, tablets, &c., both in respect of church and chapel, and of church and chapel burial-grounds?

There never has been any table of fees kept or hung up in the church. The fee to the incumbent for each funeral is 6*d.*; to the clerk, 1*s.* 4*d.*; to the sexton, 2*s.* 2*d.* The incumbent has a fee of 1*l.* for every walled tomb (or through), and 7*s.* 6*d.* for every single tombstone erected in the churchyard.

22. Who receives orders for the interments in the burial-grounds, vaults, &c.? And who selects the sites for interments—the clerk or the sexton? And who keeps the register?

The sexton. The minister keeps the register.

23. Have you any suggestions to offer in reference to burial-grounds? If so, please to state them?

An additional church and churchyard are much wanted in this parish; both are inadequate for the population. The inhabitants are of the poorest description, which causes the poor-rates and other taxes to be oppressively heavy.

(Signed) JOHN LEACH, Incumbent of Tweedmouth.

SLAUGHTERHOUSES.—The corporation have erected public slaughterhouses, but they have not the power necessary to compel their use or to suppress private slaughterhouses, although such are crowded amongst tenements and dwelling-houses; most of the butchers in the borough use some portion of their own premises as a place for slaughter, and sheep are killed in the front shop, open to the gaze of the public or on the side of the street. The inhabitants in the neighbourhood of these slaughterhouses complain very much of the nuisance created. The blood and refuse is allowed to accumulate, and in summer decomposition takes place, and gases are given off highly injurious to health.

OBSERVATIONS, SUGGESTIONS, AND RECOMMENDATIONS.

After describing that which now exists, it is my duty, in compliance with the instructions of your Honourable Board, to set forth the necessary works of improvement, which are accordingly here embodied.

The Public Health Act will enable the local Board to carry out the works of sanitary improvement as set forth therein, and also to establish by-laws for the especial purpose of efficient local self-government where the Act may be found deficient. It

will, therefore, devolve upon the corporation, as the local Board, to apply themselves earnestly and diligently to the work of improvement when the Act is put in force. The General Board will furnish full information upon all matters connected with sewerage, drainage, and water-supply; and give from time to time such instructions to the local surveyor as shall be found necessary to the efficiency of the several works. They will also protect the ratepayers from oppressive or extravagant expenditure; giving full security to each individual, as to the whole community, that no pernicious, useless, or needlessly expensive works shall have their sanction. Works of public utility, such as baths and wash-houses, may be erected in those districts most crowded, and, if such establishments are well laid out, economically built, and properly managed, they will be self-supporting; thereby conferring a benefit upon the poor inhabitants, and paying a proper return for the money so expended. With a full water-supply and efficient sewers and drains, landlords will find it to their advantage to erect private washhouses for the use of their tenants. One such would serve for six or even more cottages, and it would be equivalent to adding a room additional to each house, with the advantage of removing all the steam, slop, and bustle of washing-day to a distance, so that the labourer's room and fireside may be kept clean and comfortable at all times. Such accommodation has been provided in Wolverhampton and other towns, and is most highly appreciated by the inhabitants.

STREETS, FOOTWALKS, AND ROADS.

A street or road which has been properly formed, and is afterwards regularly cleansed, may be almost level in cross-section; or rather, the surface need not be so much curved as is generally the case. A curve of 4 or 6 inches in a width of 7 yards will be quite sufficient. Such a road will wear truer, and with the same expense may be maintained in repair longer, if at its formation it was thoroughly drained. A street pavement unduly rounded is highly dangerous for horses, and the tendency is to continue the wear on the crown of the road, and to avoid the steep sides: the whole surface of the road or street should be equally accessible. A good street pavement should have the quality of a smooth and even surface, that wheeled vehicles may pass over it without jolting; it should be capable of resisting rapid wear, to avoid the inconvenience and expense attendant upon frequent repairs; and it should offer sufficient footing to horses, that they may pass over it with perfect safety at the usual velocity. Freedom from dust and mud is only to be attained on any road or pavement by due and well-regulated cleansing.

The side channels may be paved with sets well squared, and grouted in with hot lime and fine gravel; they should be laid even with the surface of the road, and from 2 to 4 inches below the

kerb, with a slight but true inclination towards the gully-grate. These should not be more than 50 yards apart, and ought to be properly trapped.

Footwalks within the town may be edged with the best free-stone the district will produce for this purpose, or with limestone or granite, if such can be obtained at a reasonable cost. The surface of the walk may be paved with bricks, well-squared stone sets, or laid with flags. The fall towards the channel should not exceed one inch vertical to each yard in width.

Street-crossings may be formed cheaply out of the ordinary sets or pavements if these are more carefully squared, and are slightly raised and rounded above the regular line of the road.

Macadamized roads for towns have been tried on a large scale in Birmingham; all the streets in that town and the roads surrounding it are of this description of material, and with ordinary care and attention they are found to possess many advantages where the ground is steep. When in perfect order they offer a comparatively smooth and even surface for the wheels of carriages; and when well watered and cleansed, they also afford a secure footing to horses; the carriage passenger experiences less of jarring, and the shopkeeper and pedestrian less of noise. To produce and maintain a good street surface of broken stone, several things are necessary: the material should be hard, to resist wear; it should be broken to an uniform size, that the wear of the stones may be equal, and means should be taken to form it into an even surface before the stones are separately rounded by the traffic; and the street or road should have a well-drained and properly prepared foundation on which to place the broken material. When such a road has been formed it must be regularly watered and swept in dry weather, and be well cleansed by sweeping in wet weather; and to do this the most effectively and cheaply, Mr. Whitworth's machines may be used with advantage.

The cost to maintain a macadamized street is considerably greater than to maintain a good pavement of squared sets. The advantage of Macadam in a town is less noise.

Neglected, imperfect, and bad roads and streets are the most expensive. They are disagreeably dusty in dry weather, and they are destructive alike of health and comfort in wet weather; a rough and uneven road rapidly destroys the wheeled vehicles which pass over it, and their violent action when in motion tends, in an aggravated degree, to the further destruction of the road. Ruts and holes retain the wet; this softens a place already weak, and accumulates mud; and on such roads horse-power is wasted at times to the extent of one-half, or 50 per cent. "It is a common error to consider that road or street the cheapest which costs the least in direct expenditure."

As previously stated, the extension of Berwick is almost entirely prevented within the walls by the fortifications; and there will be

many past errors to rectify if the health and comfort of the inhabitants are fully considered: there are narrow streets which ought to be widened, and there are crowded tenements which ought to be removed; streets require to be sewered, drained, and repaved, and passages, courts, and yards should either be paved or the surfaces formed as described for foot-walks. All work for the sole benefit of any private property will be paid for by a private improvement rate—all public improvements will be paid for by a public or district rate.

The fortifications may be considered necessary by the Board of Ordnance; if they are necessary they ought to be kept in repair, and all nuisances be removed or prevented; if they are not necessary, portions, if not the whole of them, may be removed with great advantage, to open out the town; and I beg respectfully to recommend these remarks to the consideration of the corporation.

Public parks or recreation grounds, as such exclusively, do not exist in the district; but there are many pleasant walks open to the public, if they are only maintained in proper order. There is also the pier, which forms a pleasant and healthy promenade; as also the banks of the Tweed and portions of the walls and ramparts.

Suburban drainage has been carried out to some extent. The freemen own a considerable breadth of land, and many of them cultivate their allotment or portion—with what public or individual advantage I did not ascertain.

Bricks and tiles are made in the neighbourhood; and with proper drying-sheds, kilns, and machines, most of the tiles required for the sewers and drains in the towns may be made in the district, thereby giving full employment to the local labourer.

NEW WORKS PROPOSED.—Sewers and drains are required for the towns of Berwick, Tweedmouth, and Spittal, as also a proper water-supply. And it will be found advisable to establish common lodging-houses, baths, and washhouses; to bring the slaughter-houses which have been erected into use, and to put up, in all convenient places, public urinals. Streets, courts, yards, and roads will require to be formed, and the yards and courts should be properly flagged or paved. These and other minor works will, no doubt, be carried out at the proper time under the provisions of the Act.

Sewers and drains are of the first importance, and these should be laid out on a comprehensive scale, not only suitable to the present state of the population, but in anticipation of its reasonable increase. Correct surveys and plans will be required, on which to delineate the sewers and drains; and until this has been done a general estimate only can be furnished. As your Honourable Board propose to issue full instructions and directions, advising as to the scale and kind of plans to be prepared; and also describing

tions and details for street, yard, and house drainage, with plans, elevations, sections, and general diagrams illustrating each branch of the subject, it is not necessary that more should be described now than a general outline of the work proposed for town drainage. Berwick may be almost wholly sewered and drained with earthenware tiles: back drainage will not in all cases be possible, on account of the crowded state of many of the dwelling-houses; but where practicable this method should be adopted, as being cheaper and more efficient. Each street, lane, yard, court and house should have a drain properly trapped; and in the whole system all the drains which rise to the surface should be of less diameter than the branch they are connected with, so that any solid body, either accidentally or mischievously inserted into the surface-drain, will not block the sub-drain, but pass through it. But each surface-drain will also have to be protected by a proper grate or other covering. The advantage of this plan will consist in the impossibility of any of the deep-laid sewers or branches becoming choked; and when a drain is blocked by any means, it will be at once ascertained, as those branches rising to the surface will each indicate where such stoppage exists. Drains to waterclosets should not be less in internal diameter than 4 inches; those from sinks may be 3 inches. Few yards will require a drain larger than 4 inches. One great advantage gained by the use of pipe-drains is, the best fall may be obtained, and they can be flushed under pressure.

In sewerage Berwick, Tweedmouth, and Spittal, intercepting mains may with great advantage be laid down at some intermediate line of elevation so as to prevent the whole of the sewerage falling into the lowest level; and from these mains the refuse may be conducted into tanks for agricultural use. The mains within the influence of the tides will have to be well considered, and a proper outfall must be provided, and artificial means should be applied to prevent flooding during high water if required. Provision should, however, be made to allow any excessive rainfall to pass without injury over the surface, or at the highest practicable elevation into the river, or other nearest natural means of drainage. No system of drainage will be either efficient or advantageous which does not provide for the reservation and application of the refuse. This subject has been so fully described and explained in works of easy access, that I refrain from occupying this Report with extracts: no careful farmer will allow one gallon of his liquid manure to be wasted, and the refuse of a town, as described by Liebig, Playfair, and other practical chemists, is of more value than that from the farm-yard.*

Waterclosets may with great advantage be introduced in all

* The following works may be consulted on the value and means of applying sewer water to the purposes of agriculture:—'Sewer Manure:—Statement of the Course of Investigation and Results of Experiments as to the Means of Removing the Refuse of Towns in Water, and applying it as Manure,' with Suggestions by Edwin Chadwick, Esq., C.B. London: Reynell and Weight, 1849.—'A Paper on the Agricultural Value of Sewer and other Drainage Waters,' by Cuthbert M. Johnson, Esq., F.R.S.

places where privies at present exist. The cheaper form of pan-closet may be purchased for 7s. 6d., and such may in some cases be fitted up in the existing privies at the cost of a few shillings additional. In all crowded districts this form of convenience can alone be used with safety, as all open privies and cesspools are dangerous to health in the highest degree.

WATER SUPPLY.—A full and sufficient supply of water is of the greatest importance, and the best source ought to be sought out, and efficient works established to render such supply available at all times and under pressure. The water should be soft, pure, and fit for all purposes of domestic use. It is probable that a storage reservoir will be required, and if so there should be filters and a supply reservoir protected from the light and from impurities. There are several sites in the neighbourhood of Berwick where a full supply of water may be obtained for the whole district.

Mr. Charles R. Burnett, the superintendent of works, is of opinion that the present supply may be largely increased and made available; but, if possible, a much softer water should be obtained.

As in a full system of drainage each house should have its own proper drain, so in a full water-supply each house should have its water-tap carried within the walls of every tenement; and in many instances each room may with economy and advantage have a supply. The saving in labour by such a plan will alone more than pay the water-rent, and private cisterns, rain-tubs, and utensils, now used for carrying water from the pans, will be dispensed with. A full supply of water for all purposes may be furnished on the constant and high-pressure system to each poor family at a cost not exceeding one penny a-week. The streets, yards, and courts, may be washed down regularly at a cost not exceeding a rate on each cottage of $\frac{1}{2}$ d. a-week, and all drains and sewers may be regularly flushed and cleansed from the works; fire-engines may be dispensed with, as the necessary water will act direct from the mains. The shipping may obtain a full supply, and soft water will be made available for steam-power, with benefit to the general ratepayer and a saving to the consumer. Water under pressure is now applied with singular advantage to work cranes, hoists, and other machines; and in this respect it may be turned to great use and profit in the borough.

Time did not allow me fully to mature any definite plan of water-supply; but the following estimates will give a general idea as to the cost and income of the works proposed.

ESTIMATES.—*Berwick-upon-Tweed.*—Plans and sections will be required before a correct detailed estimate can be made out; but from experience in other towns, I consider the following general estimates will cover the required outlay. A system of public sewers and drains may be laid down for the borough, as indicated,

for a sum not exceeding 6500*l.*, and a full supply of water may be obtained at an outlay not exceeding 8000*l.*

ABSTRACT OF ESTIMATE.

Sewers and drains	£6,500
Water supply	8,000
	<hr/>
Total public outlay	£14,500

ANNUAL INCOME.

House supply	£625
Large consumers	200
	<hr/>
	£825
Working expenses, management, &c.	125

ABSTRACT OF INCOME AND EXPENDITURE.

Income.

Water-works	£825
Deduct working expenses	125
	<hr/>
Net income	£700

Expenditure.

14,500 <i>l.</i> at 5 per cent.	£725
Annual instalment to provide a fund to pay off the debt in thirty years, and to provide for contingencies	290
	<hr/>
	£1015
Deduct net income to be provided by water-rate	700
	<hr/>

Sum to be provided by a sewer-rate £315
 Or, on the annual value of the borough, if taken at 28,280*l.*, a rate of 2½*d.* in the pound.*

There is no credit taken for the refuse, which will most certainly yield a profit under proper management.

SUMMARY OF CONCLUSIONS AND RECOMMENDATIONS.—I beg respectfully to lay the following summary before your Honourable Board for consideration :—

1. That the borough of Berwick-upon-Tweed is not so healthy as it may be, on account of undrained streets, imperfect privy accommodation, crowded courts, houses, room-tenements, and large exposed middens and cesspools.

2. That excess of disease has been distinctly traced to the undrained and crowded districts, to deficient ventilation, and to the absence of a full water-supply, and of sewers and drains generally.

3. That a better supply of water should therefore be provided, and that a perfect system of sewers and drains should be laid down.

* This estimate does not include house-drains or house service-pipes: these works will be paid for by each owner of property as a private improvement rate, and will be valued according to the work done.

4. That the condition of the inhabitants would be improved, their comforts increased, and the rates reduced—

i. By a perfect system of street, court, yard, and house-drainage.

ii. By a constant and cheap supply of pure water under pressure, laid on to every house and yard, to the entire superseding of all local wells and pumps, which are proved to be expensive.

iii. By the substitution of waterclosets or soil-pan apparatus for the more expensive existing privies and cesspools, and by a regular and systematic removal of all solid refuse at short intervals.

iv. By properly paved courts and passages, and by a regular system of washing and cleansing all courts, passages, foot-paths, and surface-channels.

v. By the establishment of common lodging-houses, and by opening the unduly crowded portions of the district so as to ensure freedom of communication and ventilation.

5. That these improvements may be realized for the estimates given, and, if managed with economy, may be made not only self-supporting, but a source of income.

6. That the town sewage-manure may be applied to the agricultural land, with advantage, so as to increase its value to the farmer, and yield an income for the benefit and improvement of the town.

7. That the direct charges stated will be the means of a direct and indirect saving to the inhabitants generally, but to the labouring man especially, of many times the amount to be paid.

8. That the outlay will not be burthensome or oppressive to any class of the community, as the capital required may be raised by loan, and the interest upon it reduced to an annual or weekly rent-charge.

The Public Health Act is, therefore, not only necessary, but it will be of the greatest advantage to the ratepayers generally; and, with the exception of sections 50 and 96, I beg respectfully to recommend that it may be applied at the earliest period to the municipal borough, under the management of one local Board;—

That the existing local Acts may be repealed, excepting such clauses not in opposition to the spirit of the Public Health Act, and which the authorities may wish to be retained;—

And that the surveyor may be surveyor for the whole district, having charge and management of all sewers, drains, waterworks, roads, streets, courts, yards, and other works, which may be vested in the powers of the local Board.

I have the honour to be,

My Lords and Gentlemen,

Your obedient servant,

ROBERT RAWLINSON.

The General Board of Health,

§c. §c. §c.

APPENDIX.

MUCH of the evidence contained in this Appendix will confirm the Report of my personal inspection, and will show that no great improvement had been made from the period in which Dr. Kirkwood's statement was drawn up to the time of that inspection. The board of guardians, the magistrates, and the several members of the corporation deserve great praise for what they accomplished in anticipation of the cholera; but I am sure they will agree, that to remove a nuisance, or to cause it to be removed, without the introduction of permanent works of drainage and water-supply, is only a temporary measure, and the next week, month, and year, if neglected, the state of things becomes as bad or worse than before. Proper drains and a full water-supply are comparatively self-acting. All that is dangerous to health, instead of being retained upon or near dwelling-houses, passes away at once; ashes and other solid refuse will be removed regularly at short intervals. An establishment will do for the whole town the work which each cannot with convenience or economy do for himself.

REPORT on the State and Condition of BERWICK-UPON-TWEED,
by Dr. KIRKWOOD, presented to the Board of Guardians.

WITH the assistance of Mr. Atkinson and the Inspector of Nuisances, I have completed my inspection of the town, and have the honour to lay before you my Report thereon. It may be summed up, as far as relates to the densely populated parts of the town, in a few words condemnatory *in toto* of their condition in a sanitary point of view. In the districts to which I allude, viz., Walkergate-lane, Wallace's-green, and Chapel-street, we visited every court and alley ramifying from them; and, in those, sanitary measures are more immediately required to be put in force, threatened as we are more and more every day with the visitation of an alarming disease. According to all experience in this country, cholera visits with greatest severity the same class of persons and the same places, and is governed by the same circumstances as typhus fever, a malady from which some parts of those streets have scarcely been free, and with which the hospital attached to this workhouse has been so frequently supplied of late years. Those streets themselves, but more especially the courts and alleys adjoining them, are, therefore, I regret to say, in the most favourable condition for the propagation and development of cholera, and I feel certain, that unless immediate measures are taken for the cleansing and purifying of these localities, they will ere long be visited by a general and formidable epidemic of this fearful disease. It would tire the Board were I to enumerate the condition of all the places we visited in our rounds. It would consist of a disgusting repetition of filthy ashpits and privies, of want of drainage, and deficient supply of water, and of

dirty, miserable, and crowded habitations. I shall, therefore, merely mention one or two in each locality, assuring the Board at the same time that they are all nearly equally bad. In every case where a nuisance existed, the inspector was requested to effect its immediate removal. We took occasion, at the same time, to visit most of the dwellings, and to caution the inhabitants to keep their houses and yards in the most cleanly possible condition.

1st. *Wallace's-green*.—This in general is in a most filthy condition. The street, which is unpaved, is swept sometimes only once, but at most twice a-week, and the gutters, being in a bad state of repair, and not sufficiently sloped, are generally filled with dirty water in a stagnant state. At night especially, when the filth of the inhabitants is mostly thrown out, the effluvia from this source are most noxious. The houses on each side are for the most part below the level of the unpaved street, and are consequently damp and unwholesome. The yards or courts adjoining are mostly populated by low Irish, who in many instances eke out their means by subletting their miserable apartments. It is consequently no unusual circumstance to find three, four, or five families, men, women, and children, huddled indiscriminately together in one apartment, which even in a most airy locality would be scarcely sufficient for the healthy existence of one. No one but persons who have visited such dens can have any idea of their horrible condition. Where there are beds they touch each other, and generally occupy above three-fourths of the room; the space below them serving as coal-cellar, and a depôt for every sort of filth. The ordinary rules of cleanliness and decency are set at nought; and to augment the evil, these lodging-houses are generally in the most miserable and ill-ventilated yards, which in their turn contain ashpits, privies, and pigsties in a most loathsome condition. In many cases the poor inhabitants, sensible of the evil which such abominations inflict, complain of the present inadequate supply of water, and in many instances poverty prevents them from keeping vessels in which to preserve a constant supply.

Samson's-yard.—In one yard, about 14 feet by 12, in a very filthy state, surrounded by houses, so that no current of air can pass through it, is a large ashpit and privy, common to all the inhabitants, occupying nearly half the yard: it is in a most foul and offensive state. The inhabitants complain most bitterly of this nuisance, stating that in warm weather they are scarcely able to exist in such an atmosphere. The houses are small, very dirty, crowded, and in bad repair. One room on the ground-floor, about 12 feet square, and situated some inches below the level of the yard, is inhabited by a poor Irish woman and seven children; the youngest child is one year old, the eldest fourteen: the fluid matter from a midden in the adjoining yard oozes through the back wall, and runs upon their miserable bed of dirty straw, which is laid in one corner upon the floor; their only covering is the tattered rags upon their backs. There is no article of furniture in their room. The windows and door are quite insufficient to keep out the cold, or, what is more deleterious, the fumes from the abominations in the yard. Above this place, in a room of the same size, are a man, his wife, and eight children: the man states that he cannot open his window on account of the nuisances below.

Howe's property.—A small yard, containing one or two ashpits and privy in a most offensive state. In one room about ten feet square are two beds, occupied by a father, daughter, and four lodgers—two male and two female, not related—occupying in all two beds. This room I have known to be occupied with ten inhabitants; and a few months ago I attended a man with a bad attack of small-pox, whose only bed was formed of some rags and straw strewed on the floor betwixt the two beds.

In this and the former yard typhus-fever has seldom been absent for above two years.

In the *Highlanders' Arms-yard* is a lodging-house about the same size, and frequently containing 12 to 14 people. The space below the beds seems to answer the purpose of coal-cellar and a depôt for all sorts of filth. Outside and close to the door are a dunghill, privy, and pigsty, in a very loathsome condition.

Walkergate-lane.—The same remark as to the state of the streets in Wallace's-green, is applicable here. The inhabitants complain most bitterly of the dirty state in which they are kept, and of the noxious odours so caused:

Gibson's property.—This is a small yard, 16 feet by 8, which has been converted by itinerant vendors into a sort of lodging-place for their horses and donkeys. It is about an inch thick with their excrement. It also contains an ashpit and privy in the usual state of filth, the seat and floor of the latter covered with human excrement. Being surrounded by houses and stables, no current of air can pass through. The pestilential odour, therefore, from these several sources is most intolerable. Into this opens a window, the only source of ventilation to an adjoining house in Walkergate-lane.

Morrison's-yard.—A large yard, in which are several stables and large dunghills. The pavement is very bad, and the fluid matter lies stagnant till it evaporates in the most noxious gases. The inhabitants complain of the odour as being most intolerable.

Dodd's-square.—The inner yard of this contains a large ashpit full of human excrement, rendered semifluid by the refuse water emptied into it by the inhabitants. The odour from it is such as to render it next to impossible that any one can live in the houses around it with health. This horrid mass percolates through a wall into a crowded court in Chapel-street, of which notice will be taken when reporting on that street.

Hatters'-lane.—Yards generally filthy, and containing ashpits and privies in the usual loathsome condition, though the street is neither very dirty nor very crowded.

Chapel-street.—The state of this street is truly deplorable, and a great disgrace to the town. It is often not swept more than once a week, and that, if the inhabitants are to be believed, in a most careless manner. On several occasions, in answer to my advice as to ventilating their houses, the inhabitants declared that they could not keep their windows open on account of the horrid stench that emanates from the street—caring rather to endure the close and suffocating atmosphere within, than to inhale the pestilential vapours from without. One man has assured me since, that he has attempted to keep birds several times, but they always die, he believes from the filthy air. Another says that

he looks upon a very wet day as a perfect blessing, the air feeling so sweet and refreshing after it. In general there is no water in the yards, the total supply for the entire population being from a public pump. The present deficient supply of water tends to produce a continual crowd round it, and, I dare say, prevents many a one from taking a quantity sufficient for the purposes of cleansing, &c. The state of the yards and alleys ramifying from this street, from the more dense population and narrowness of the street, is even more favourable to the production of disease than the last two streets. In one yard (Baxter's) are 14 pigsties containing 25 pigs. They are mostly in a filthy condition, and, there being no drains, the stench is most disgusting. The owner of the property earns a subsistence by letting the yard out for sites for these sties, at 4s. 6d. each; in addition, there are two byres, and the usual filthy dung-pits and privy. Fortunately the yard is large and open, or the nuisance would be intolerable.

Robison's property.—On attempting to enter this, the smell that assailed us was so overpowering as to oblige us to retire. On penetrating it we found the odour caused by a dunghill contained in an old byre, the semifluid matter from which oozes through the walls, and lies in stagnant pools in the yard. The entry and portion of the yard itself runs underneath the houses, so that no current of air can counteract the baneful influence of the disgusting effluvia which ascend and fill the apartments above, for the most part crowded and dirty. Their miserable inhabitants complain most bitterly of the annoyance, declaring that they are sometimes almost suffocated.

Shanks' property.—The matter from a privy in a property in Walkergate-lane (already noticed) percolates through the back wall of this yard and lies stagnant beneath the windows of one of the houses, causing a most disgusting stench. The ashpit is, as usual, filthy, and the whole yard very dirty and containing four pigsties.

Jackson's-yard.—A small yard, 7 feet by 5, running underneath the houses, and so situated as totally to prevent fresh air from entering. It contains an ashpit and privy, occupying nearly half its space, and is in a deplorably filthy and disgusting condition.

Corporation's property.—Ashpit very dirty, full of putrid matter.

Gilchrist's-yard.—In the same state.

Border Brewery property.—A small yard in which there is a large and deep pool of stagnant water from which the most noxious odours are exhaled. Perhaps I may mention a lodging-house in this street which is frequently in a very crowded state; one room, 18 feet by 10 or 12, containing five beds touching each other. Another, about one-half the size, contains three beds and another two. The smallest complement allowed to each bed is two occupants, but they more frequently contain three or four people of every age, and both sexes occupy the same rooms; the men strip naked, setting decency totally at nought.*

Church-street.—This street is in general in a much more favourable condition than those hitherto noticed: the first four yards on the east side, proceeding from the Parade, are, however, most unfortunately

* It is a common practice all over the country for the male lodgers in these places (common lodging-houses) to strip themselves naked on going to bed, irrespective of the presence of children or females, although perfect strangers to each other; and there is neither curtain nor screen of any description to separate the beds.—R. R.

situate with regard to drainage. They run back from the street in a considerable declivity; the whole surface refuse, dirty water, &c., thrown out by the inhabitants, runs backwards and sinks into the gardens behind, where the rankness and luxuriance of the crop show its beneficial effects upon vegetable, and its deleterious influence upon animal life at the same time. In one of these yards the drain is in a very disgusting state; it runs along the wall of a crowded school occupied by from 50 to 60 scholars, the floor of which is an inch or two below its level. Its contents ooze through the bricks, and occasionally give rise (according to the master) to very offensive exhalations. These gardens occupy the entire space between Church-street and Ravens-down, and are about 10 feet below the level of both, so that the existing evils can only be remedied by forming a covered drain between these streets to join another about the top of Woolmarket.

Lamb's-yard.—Houses in a most dilapidated condition, and, except in front, uninhabited; a large room in the first-floor of one of the houses seems to be made use of as a public necessary, the floor being covered to the depth of several inches with human excrement, and polluting the surrounding air with the most disgusting effluvia.

High-street.—The first nuisance requiring special attention is a yard (Bell's property) used for the purpose of cleaning and curing fish. The inhabitants, to a considerable distance on both sides of the street, complained most loudly to us of the odour sometimes emanating from it as being intolerable. Though the process was not in operation at the time of our visit, yet the yard was covered with refuse, and altogether so dirty that it cannot fail to be noxious to health.

Crawford's-alley.—In a very dirty state, in many parts strewed with human excrement.

Weatherly's-square.—In the same state; ashpits in the usual state of filth; there are here many low lodging-houses crowded to an incredible degree. In one, about 22 feet by 16, there are at present 11 inhabitants; but according to the landlord there are sometimes 27; and as the entire cooking, washing, and drying of the establishment is carried on in the same apartment, the air is consequently very vitiated.

Black Bull-yard and *Boarding-school-yard.*—Also in the same condition as regards the filthy condition of the ashpits.

Eastern and *Western lanes* are perhaps in a more favourable condition, in a sanitary point of view, than most parts of the town: from the declivity on which they stand, the dirt in the streets cannot but be washed off with every shower. We had occasion, however, to order the removal of the usual nuisances.

Castlegate.—With a few exceptions the yards here are in a cleanly condition and not overcrowded.

Greenses.—With very few exceptions we found this neighbourhood very cleanly; at the bottom, however, in a field separated from the street by a low wall, there is a drain in a stagnant state, emitting gases of the most deleterious description. Into it flows the water thrown out by the entire population of the Greenses.

Since making my inspection, of which the above is the Report, I have visited most of the districts which we had then occasion to find the greatest fault with; and I am happy to say, through the vigilant

and zealous efforts of the inspector, they are to a great extent amended. The streets too are much cleaner.

The above Report gives but a poor idea of the actual state of the most crowded parts of our town; it requires a person to traverse the localities themselves to be perfectly alive to their horrible condition, and to wonder that evils so evident to the senses, so disgusting to the sight, so sickening and sensibly pernicious to all who come within their sphere, should not have received that attention from the legislature which the health of our unfortunate brethren condemned to live in such abodes so eminently demands. It is not only when we are threatened with the invasion of maladies from abroad that we should exert ourselves in the removal of these nuisances, for it must be recollected they are continually in operation, and exert a far more certain, continual, and deadly influence over those diseases we are daily in the habit of seeing, but which, from their frequency, we think lightly of. Their effect in producing a diseased and sickly offspring is also apparent, and this adds in a two-fold degree to the taxation and burden of the ratepayers.

(Signed)

A. KIRKWOOD, M.D.
